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A
TEXT-BOOK
OF
GYNECOLOGY

166354

DESIGNED FOR THE
STUDENT AND GENERAL PRACTITIONER

BY
A. C. COWPERTHWAIT, MD., PH.D., LL.D.,
PROFESSOR OF MATERIA MEDICA AND DISEASES OF WOMEN IN THE HOMŒOPATHIC MEDICAL
DEPARTMENT OF THE UNIVERSITY OF IOWA; PRESIDENT OF THE AMERICAN INSTITUTE
OF HOMŒOPATHY; AUTHOR OF "A TEXT-BOOK OF MATERIA MEDICA;"
"INSANITY IN ITS MEDICO-LEGAL RELATIONS," ETC., ETC.

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1888.

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:

TO
THE ALUMNI
OF THE
HOMŒOPATHIC MEDICAL DEPARTMENT
OF THE
STATE UNIVERSITY OF IOWA,
WHOSE SOLICITATIONS FIRST PROMPTED ME TO UNDERTAKE
THE LABOR OF ITS PREPARATION,
THIS VOLUME
IS RESPECTFULLY DEDICATED BY THEIR FRIEND,
THE AUTHOR.

P R E F A C E.

In presenting this book to the profession a word of explanation, and, perhaps, of apology, is appropriate.

During the eleven years that it has been my privilege to fill the chair of Gynècology in the State University of Iowa, I have seriously felt the need of a text-book for students that would be systematic in its arrangements, concise in its details, and cover the entire list of diseases comprehended by the term "gynecology;" together with their homeopathic therapeutics. After long waiting in the hope that some one better qualified would assume the unenviable task of preparing such a work, I have, at the earnest solicitation of students and professional friends, taken it upon myself to make the attempt, and the present volume is the result of my labors. That I have presented nothing strikingly new or original is probably true, but I have endeavored to collate only from recognized authorities, and to include the very latest that is known regarding the pathology and treatment of gynecological diseases.

It will possibly be urged by some that I have paid too much attention to the local treatment of uterine diseases, and too little to their therapeutics. While I am convinced that these diseases are often due to mal-nutrition, and other constitutional causes, and are, therefore, only to be combated by careful internal medication, nevertheless, after twenty years' experience, I am satisfied that a large majority of cases of uterine disease can be successfully overcome only by a judicious combination of both constitutional and local treatment, and it is my opinion that the opposite view

is entertained only by theorists, who have had little or no practical experience in the treatment of cases of this class. In some instances I have named only the remedies most often used in a certain disease, referring the reader to the materia medica for individual indications, which I believe to be the proper method; but in most cases I have given briefly the chief indications for the leading remedies. The successful gynecologist must carefully study his materia medica, in every case, and not depend too much upon a few characteristic indications, which, isolated from other symptoms, may sometimes prove to be misleading.

Fully realizing the imperfections of the work, yet hoping that it may fulfill the purpose originally intended, I now submit it to the profession.

A. C. COWPERTHWAITE.

IOWA CITY, IOWA, SEPTEMBER 20, 1888.

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A TEXT-BOOK OF GYNECOLOGY.

CHAPTER I.

ANATOMY OF THE GENITAL ORGANS.

BEFORE attempting to study the pathology of an organ it is of the utmost importance that an accurate knowledge be obtained of that organ while it is in a state of health. If we do not know the normal size, shape or position of the uterus we are poorly fitted to recognize abnormal conditions which are chiefly manifested by changes in its size, shape or position. If we cannot tell how the uterus feels to the touch, or if we are ignorant of the appearance it presents to the eye when in its normal condition, we are not competent to diagnosticate a departure from that condition. It is essential, therefore, to present to the student at the outset the most important features of the surgical anatomy of the reproductive organs in the female. This will be done as briefly as possible, leaving a greater elaboration of the subject to more exhaustive treatises.

The VULVA includes what are known as the external genitals, which consist of the mons veneris, the clitoris, the vestibule and the fossa navicularis. For convenience the meatus urinaris and hymen are also described with these, although the former belongs to the urinary system, and the latter separates anatomically the vulva from the vagina, or the external from the internal genitals.

The MONS VENERIS, or "mount of love," is the name given to a rounded eminence situated in front of the pubes, above the vulva. The eminence is made up in part of the projection of the bones, and partly of the adipose tissue which forms a cushion under the skin. At the epoch of puberty it is covered with hair.

The LABIA MAJORA are two prominent folds of skin which bound the orifice of the vagina. Flattened transversely, thicker above than below, they present in the adult an external aspect covered with hair, and an internal aspect moist and smooth, contiguous with the corresponding aspect of the opposite labium. The anterior, or upper, extremity is continuous with the mons veneris, and the lower, or posterior, extremity unites with that of

the opposite side to form the fourchette. The space between the fourchette and the anus constitutes the perineum, which is usually about an inch in length. The substance of the labia consists of fat, blood-vessels and dartos, the latter being analogous to the dartos in man, which is considered to establish an analogy between the labia majora and the male scrotum.

The LABIA MINORA, or nymphæ, are two small, oblique folds of skin arising from the inner aspect of the labia majora at

FIG. 1. EXTERNAL GENITALS OF VIRGIN with Diaphragmatic Hymen. The Labia Majora and Minora are drawn apart, and the prepuce drawn back. The cadaver is in the lithotomy posture (modified from *Sappey*). *a*, Labium majus; *b*, Labium minus, *c*, Præputium clitoridis; *d*, Glans clitoridis; *e*, Vestibule just above urethral orifice; *f*, Mons Veneris.

about the middle, converging anteriorly, and each dividing into two small branches. The upper branches meet and form a hood-like fold, which is the prepuce of the clitoris, while the lower branches are attached to the clitoris, and form its suspensory ligament. The surfaces of the labia minora are smooth or slightly

roughened, and their free border is convex, nearly acute, and often slightly notched. In the child the nymphæ project beyond the labia majora, but when normal in size, this does not occur in the adult. Their substance consists of a non-adipose tissue, and large bundles of elastic fibres anastomosing in a network. Sebaceous glands, analogous to those of the internal aspect of the labia majora, but smaller, open on both surfaces, but principally

FIG. 2.—Section of female pelvis. 1, rectum. 2, uterus. 3, cul-de-sac of Douglas. 4, vesico-uterine space. 5, bladder. 6, clitoris. 7, urethra. 8, symphysis. 9, sphincter ani. 10, vagina. (Kohlrausch modified by Spiegelberg.)

on the internal surface, where they form a very crowded layer. Their vascular supply is well developed, and is obtained from branches of the internal pudic artery.

The CLITORIS is a small, curved, rudimentary, erectile organ, analogous to the male penis, terminating in a small, imperforate glans, the glans clitoridis. Covered by its prepuce, before men-

tioned, it lies in the middle line and at the apex of the vestibule. The glans is the only part visible under normal conditions, and varies in size from that of a small shot to a pea, in some cases being so small as to elude discovery without careful search. In exceptional cases the organ is excessively developed, and may appear in size and form very much like the male penis, such cases having been reported as instances of hermaphroditism. In some women the clitoris is not easily excited, while in others erection takes place readily, the organ becoming distinctly arched and

S

FIG. 3.—Front View of Perineal Septum, showing entire clitoris (Savage):
 1, clitoris; 2, suspensory ligament; 3, crura of clitoris; 4, subpubic ligament; 5, dorsal vein of clitoris; 6, perineal septum; 7, superficial transverse muscle; *U*, urethra; *V*, rectum and vagina; *P*, site of perineal body.

assuming the character of a firm, hard cord, while the glans sensibly protrudes. The organ arises by two roots from the ischio-pubic rami, which unite superiorly to form the body of the clitoris, which lies beneath the mucous membrane. The glans is not directly continuous with the body, but has the appearance of a bulb.

The VESTIBULE is a triangular, smooth, mucous surface, bounded superiorly by the clitoris, laterally by the labia minora, and inferiorly by the upper margin of the vaginal orifice. In the

middle line, at its base, the dimple of the urethral orifice can be distinctly felt in front of the fourchette. Small depressions and mucous glands open on its surface.

The *FOSSA NAVICULARIS* is the space which separates the fourchette from the entrance of the vagina, the posterior boundary being the inner aspect of the fourchette, and the anterior being the posterior aspect of the hymen.

The *HYMEN* is a fold of mucous membrane separating the external from the internal genitals. It is usually thin and easily ruptured, and in early virginity partially closes the vulvar orifice. It is often of a crescentic shape, and thicker at the sides where it

FIG. 4.—Lateral view of the erectile structures of the female external organs. The skin and mucous membrane have been removed and the blood vessels injected. *a*, bulbus vestibuli; *v*, plexus of veins called the *pars intermedia*; *e*, glans clitoridis; *f*, corpus clitoridis; *h*, dorsal vein; *l*, right crus clitoridis; *m*, vestibulum; *n*, right gland of Bartholin or Duverney.

is attached. At one time its presence was considered to be a proof of virginity, but this idea has long been exploded. In a healthy woman who has experienced complete coitus it is usually torn, though sometimes only stretched. In a woman who has borne children it is always torn. In a female infant the hymen exists only in a rudimentary form. In some young women it never becomes fully developed, and in many others its growth is arrested after attacks of measles or scarlet fever. In a few rare cases the hymen has been found fully formed and imperforate in new-born infants.

The *VAGINA* is the organ of copulation in woman, and at the same time serves as a canal for the passage of the menstrual and other fluids, and the products of conception. It is a membranous canal or collapsed tube extending in from the vulva to the uterus, and lying between the urethra and bladder in front, and the rectum behind. Its lower limit is marked out by the hymen, which also marks the anatomical division between the external and the internal genitals, the latter commencing with the vagina.

The vagina is from four to five inches in length, and has an anterior and a posterior wall, the anterior being shorter than the posterior. Both walls are triangular in shape, with the base upward and backward. The anterior wall extends from about the urethra, with which it is intimately related, backward and upward under the bladder, with which it is united by loose connective tissue, and is finally reflected down a short distance on the anterior lip of the cervix, the anterior fornix being thus formed. In the same manner the posterior wall extends from the vaginal orifice upward, and is reflected upon the cervix, forming the posterior fornix, which is deeper than the anterior. The anterior wall is straight, but the posterior wall is curved, the curve varying according to the position of the uterus and the amount of distention of the bladder and rectum. The vagina is, therefore, a curved canal, the posterior wall of which is longer than the anterior, so that in making a vaginal examination the finger reaches the anterior fornix more readily than the posterior. The whole canal has been likened to a flexible tube shortened anteriorly by a cord passed from end to end through one of its sides. This would corrugate the shortened side, and we find that while the mucous membrane of both the anterior and posterior walls is arranged in transverse rugous folds, that of the anterior wall is much rougher and more rugous than the posterior.

FIG. 5.—The Vagina, (after removal of posterior wall) *Ou*, men-
tusurinary, *Oue*, external os uteri
B, section of wall at the fornix
vaginæ. (Henle).

nuclei), of connective tissue, elastic tissue, and some unstripped muscular fibre. The superficial layer of the connective tissue forms papillæ, into which blood-vessels project. The epithelium is therefore rigid. External to this lie two layers of unstripped muscular fibre; the inner longitudinal, the outer circular (Henle).

1) Manual of Gynecology, p. 28.

Breisky alleges the inner to be circular. There are no glands in the vagina, but gland-like crypts and lymph-follicles exist (Lowenstein). The whole is surrounded by loose connective tissue, containing the outer venous plexus of the vagina."

The vagina is narrowest at the entrance and becomes much wider at its upper extremity, where, in women who have borne children, it forms a large bag or cavity. The canal is capable of extreme dilatation, but when not dilated the walls are in apposition antero-posteriorly, except when a true cavity is present in the upper part, the walls of which do not close. The bulb of the vagina occupies the upper vaginal wall near the entrance, filling the space which separates the entrance of the vagina from the roots of the clitoris. It is analogous to the corpus urethra.

THE URETHRA AND BLADDER.

The female urethra is a short, wide canal, less than two inches long, directed backward and upward to the neck of the bladder. It lies about an inch below the glans clitoridis, and immediately above the vaginal entrance, being, as it were, hollowed out of the upper vaginal wall. Its diameter is about one-fourth of an inch, and it is capable of being rapidly distended; its mucous coat contains a large amount of elastic tissue. The female urethra pierces the triangular ligaments, as in the male.

The female bladder, when empty, lies behind the pubis and in front of the vagina. It is made up principally of two coats, mucous and muscular. The only parts of the bladder covered by peritoneum are the fundus and a small surface next the uterus. Those portions in contact with the pubis and the anterior vaginal wall have no serous covering. In the young child and the aged woman the longest diameter is the vertical; during adult life the transverse diameter is the longest. Its ordinary capacity is about one pint; although, when distended, it is capable of holding six quarts. The openings into it are three, namely, the two ureters and the urethra. These represent a triangular space, of which the two ureters constitute the base and the urethra the apex; the distance from each opening to the next is about one inch. The ureters pierce the bladder obliquely, running for an inch between the muscular and mucous coats.

The urethra may be safely dilated to the extent of admitting a slim forefinger to explore the bladder. Dr. Churchill relates a case in which the hymen was "rigid and persistent, the vaginal orifice very small, but the urethra extremely dilated, and I ascertained beyond all doubt, that intercourse always took place through the urethra" (1). Dr. H. R. Storer details a remarkable

1) Churchill on Diseases of Women, p. 84, 1857.

case, in which a Hodge's open-lever pessary was unintentionally introduced into the bladder through the urethra, by a physician. Dr. Storer successfully removed it, without incision, by dilating the urethra. The patient, a young unmarried woman, soon regained complete control of the vesical sphincter. He also refers to another similar case. (1) Professor Byford gives details of two cases which occurred in his practice, (2) and Dr. Edwards, of Lancaster, Ohio, relates the particulars of another, this making an aggregate of five cases in which an open lever pessary was introduced into the bladder instead of into the vagina.

THE UTERUS.

The uterus is the organ which receives the fecundated ovum and in which the latter receives the material for its nourishment and development. It is a hollow organ, shaped like a flattened pear, possessing thick, muscular walls. When unimpregnated it is usually about three inches in length, two inches wide at the upper part, and one inch thick. It is situated above the vagina

FIG. 7.—Transverse Section of the Body, showing relations of fundus uteri (Savage): *M*, pubes; *A, A*, hypogastric arteries in front, spermatic vessels and nerves behind; *B*, bladder; *L, L*, round ligaments; *U*, fundus uteri; *T, T*, Fallopian tubes; *O, O*, ovaries; *R*, rectum; *G*, right ureter; *C*, utero-sacral ligaments; *V*, last lumbar vertebra.

and between the bladder and rectum. The fundus is uppermost, and is directed forward. It is held in position by folds of the peritoneum, which is reflected upon its anterior and posterior surfaces, being attached to the anterior surface of the uterus at its sides, and passing outward and somewhat backward is attached

1) *Gynecological Journal*, August, 1870.

2) *Chicago Medical Examiner*, December, 1860.

to the sides of the pelvis in front of the sacro-iliac synchondrosis. These are the *broad ligaments* of the uterus. Their upper border is formed mostly by the Fallopian tubes, and that part of the free margin not occupied by the tube forms the infundibulo-pelvic ligament of the ovary. The position of the broad ligaments varies according to that of the uterus. When the uterus is normal in position, *i. e.*, lying to the front, their posterior surface looks upward and somewhat backward, as already described. Displacement of the uterus backward causes coincident displacement of the ovaries, and in pregnancy they are drawn up, and occupy a position which is almost vertical. Pathologically they cicatrize after inflammatory attacks, causing unilateral deviations of the uterus. They offer no resistance to anterior or posterior displacements, and scarcely any obstacle to prolapsus.

A

In addition to the *broad ligaments* the uterus has also the *round ligaments* and the *utero-sacral* and *utero-vesical ligaments*.

The *round ligaments* are two fibromuscular cords, varying in length from four to five inches. They arise from the superior angles of the uterus, pass forward and outward to the internal inguinal canal, and are attached by tendinous filaments to the substance of the mons veneris. On account of the numerous muscular fibres present, it seems probable that their principal use is to draw the fundus forward during copulation, thus lengthening the vagina. If they resist displacement at all, it must be by preventing retroversion when the bladder is enormously distended.

FIG. 8.—Anterior view of Virgin Uterus, (Sappey). 1, body; 2, 2, angles; 3, cervix; 4, site of os internum; 5, vaginal portion of cervix; 6, external os; 7, 7, vagina.

The *utero-sacral ligaments* are composed of peritoneal folds, inclosing smooth muscular fibres. They spring from the lower part of the uterine body, and are attached to the outer side of the sacrum, leaving a pouch between them, called Douglas' sac. These ligaments serve to prevent prolapsus and anteversion. In the upright posture the womb naturally leans forward, and the utero-sacral ligaments keep it from pressing on the bladder.

The *utero-vesical ligaments* are only rudimentary. They consist of peritoneal folds, inclosing fibrous tissues. They extend from a point opposite the junction of the body of the uterus with the neck, on each side, to the corresponding side of the bladder, form-

ing between them a small anterior pouch. The uterus is also closely connected with the bladder, rectum and vagina, and these organs aid in maintaining it in position.

The uterus is divided into a body, or fundus, and a neck, or cervix. The upper border, or fundus, is convex, thick, rounded, and forms the base of the flattened cone which the uterus represents. Clothed with peritoneum and covered with the coils of the small intestine, the fundus of the empty uterus never rises to the level of the brim of the pelvis; it is, therefore, only when in a diseased condition, or during pregnancy, that it is possible to feel it by the fingers applied to the hypogastrium. In the nulliparous woman the upper border is nearly straight, and on a level with the Fallopian tubes; after one or more pregnancies it is always

C

FIG. 9.—B, median section of virgin uterus; C, transverse section; (Sappey) B. 1, 1, profile of the anterior surface; 2, vesico-uterine cul-de-sac; 3, 3, profile of posterior surface; 4, body; 5, neck; 6, isthmus; 7, cavity of the body; 8, cavity of the cervix; 9, os internum; 10, ant. lip of os externum; 11, posterior lip; 12, 12, vagina. C. 1, cavity of the body; 2, lateral wall; 3, superior wall; 4, 4, cornua; 5, os internum; 6, cavity of the cervix; 7, arbor vitæ; 8, os externum; 9, 9, vagina.

convex, being more raised in the middle than near the origin of the tubes.

The cervix, or inferior extremity of the uterus, forms the apex of the cone. The vagina being inserted upon the cervix divides it into a vaginal portion and a supra-vaginal portion. The vaginal portion is known as the os tincæ, and has the form of a rounded cone. It usually projects from one-fourth to one-half an inch, but may become longer in certain pathological states, and gradually disappear as the child-bearing period advances. The

apex of the cervix is pierced by an opening which leads to the cavity of the uterus. In the virgin this opening is a transverse fissure bordered by two lips, one anterior, the other posterior, the anterior lip being thicker and more prominent than the posterior. The sensation which the os tincæ gives to the finger has been likened to that received upon touching the lobule of the nose. At the menstrual epoch the neck is a little gaping. In women who have borne children the os externum represents a larger fissure, often large enough to admit easily the end of the index finger; the lips are thicker, uneven, and often present notches, the remains of the rents they have undergone during labor. One of these notches is almost always seen toward the left commissure, a fact which is explained by the great relative frequency of the left occipito-anterior position.

Sometimes the portion of the uterus which projects into the vagina quite disappears. In such cases the vagina terminates in a cul-de-sac, at the bottom of which is felt only a contraction separating the cavity of the vagina from that of the uterus. This condition is most frequent in old age. (1).

The uterus has three openings. There is one at each upper angle, leading to the Fallopian tubes, and a third at the lower end of the cervix—the os externum—opening into the vagina. This has been already described. The openings into the Fallopian tubes enter obliquely; they are only large enough to receive a bristle, and are generally filled with mucus.

The uterine cavity is lined by a thick mucous membrane, which is thicker in the cervix than in the corpus. There is no submucous tissue between the muscular and mucous layers, so that it is practically impossible to separate the two distinctly, the muscular fibres and mucous tissue being to some extent interwoven. The peritoneal coat covers the entire posterior surface of the womb, dipping down even below the level of the posterior lip; but on the anterior surface it abruptly terminates on a level with the internal os, and is reflected upon the bladder. On this account the connection between the bladder and the uterus is much more intimate than that between the rectum and uterus. A layer of cellular tissue binds the neck of the bladder closely to the cervix uteri, and any change of position, such as occurs in prolapsus, affects the bladder more than it does the rectum.

Unless when distended by menstrual fluid, clots, tumors, or a foetus, the uterine walls are normally in contact. The cavity of a virgin uterus is only large enough to contain a split almond. The mucous membrane lining the cervix is corrugated, and is called *arbor vitæ*. Owing to the presence of the rugæ it is some-

1) Barnes' Diseases of Women, p. 42.

times easier to pass a full-sized sound than a very small one, the latter being more apt to be caught in a fold, as occasionally happens in catheterism of the male urethra. The cavity is slightly curved, and therefore the sound should have a corresponding curve.

Uterine mucus has an alkaline reaction. The portion which comes from the body is creamy in appearance, while the mucus



FIG. 10.—Position of Uterus. *A*, with bladder and rectum empty; *B*, *C*, *D*, according to distention of bladder (*Van De Warker*).

secreted in the cervix is transparent and viscid, like the white of an egg.

The epithelium of the body, and as far as the middle of the neck, is cylindrical, with fine cilia, but the cilia do not appear until puberty. The lower third of the neck is lined with pavement epithelium.

The weight of the uterus, at puberty, is about one and a half ounces; at the full term of gestation, nearly two pounds; after involution, two ounces; and in old age, one ounce. The uterus

may be present in a merely rudimentary form, or it may be entirely absent.

The uterus is so intimately related to, and connected with, surrounding organs and tissues that its movements are limited to these connections, and influenced by the changed conditions of these organs. The cervix, being somewhat firmly held in position by the bladder and vagina, has a very limited range of motion. The fundus uteri, on the other hand possesses very considerable mobility, and when thrown backward, or forward acts as a lever, throwing the cervix in the opposite direction. When the bladder and rectum are empty the uterus lies normally in a position of slight ante flexion, but if the bladder becomes distended it will force the fundus backward, (Fig. 10); or, if the rectum becomes loaded, it will be pressed forward and downward.

“In retroversion of the fundus of the uterus, enlarged by gestation or other causes, the cervix may be driven so firmly against the symphysis pubis as to close the urethra; and as the base of the bladder to which the cervix uteri is attached has a certain amount of mobility, in anteversion of the body of the uterus the cervix may be carried back close to the promontory of the sacrum, dragging the attached wall of the bladder with it. But the upward mobility of the part of the bladder to which the cervix is united is limited; hence it happens that when the fundus is thrown backward, the cervix, held down in some degree by its vesical attachments, becomes bent, so that the os looks downward, instead of being projected forward exactly in a line with the axis of the fundus.

“In case there is present a collection of blood in Douglas' cul-de-sac—retro-uterine hematocoele—the whole uterus may be driven forward closely behind the pubis. The fundus also is prone to a slight lateral displacement. Even in health this is commonly present in a slight degree, the uterus being usually inclined a little to the left side.

“Some amount of alternate elevation and depression of the uterus takes place normally, under the influence of respiration and of voluntary muscular exertion. On inspiration the entire mass of abdominal viscera is forced downward, pressing the uterus before it. On expiration there is a general movement of collapse toward the center of the body, under the influence of atmospheric pressure. This, of course, bears most directly upon the external soft parts. The perineum and vulva are pressed inward, and the uterus rises toward the abdomen. Under the influence of defecation, again, or of any powerful muscular exertion in which the chest-walls are fixed, the uterus is driven downward; sometimes, indeed, so violently that complete prolapsus of the uterus

occurs in a virgin, under the violent efforts of epileptic convulsions. The descent of the uterus, anterior wall of the vagina, and base of the bladder, is very obvious, if vomiting or coughing occur during an examination by speculum. The instrument is easily driven out, as the os uteri is often brought quite down to the vulva. This observation proves that the so-called ligaments of the uterus exert but a small influence in preventing prolapsus." (1).

It has long since been settled that while the uterine ligaments, the vaginal walls and the perineum contribute to the support of



FIG. 11.—Diagram to show Normal Form and Position of Virgin Uterus (Schultze).

the uterus, they do not by any means constitute its entire support, all the segments of the pelvic floor, both pubic and sacral, being required for that purpose. Although these supports are slighter and more easily overcome than was formerly believed, they are supports, and interference with them is an important link in a chain of untoward events. The various uterine supports are to a great extent the seat of motor influence. They consequently not only resist excessive movement, but also serve to return the organ from its physiological migrations.

1) Barnes' Diseases of Women, p. 87.

THE FALLOPIAN TUBES.

The Fallopian tubes are the oviducts, or excretory ducts of the ovaries, but, as Dr. Barnes says, (1) "they differ from all other excretory ducts in being entirely detached from their proper glands," and they furnish the only example in the human body of direct communication between a mucous and a serous surface. They arise one on each side of the uterus and run out from its upper angles toward the sides of the pelvis, where they terminate in fringe-like ends, which are known as their fimbriated extremities. Only one of these fringes on each side runs to and is attached to the ovary, but at certain times the whole fimbriated extremity embraces the ovary, and receives an ovum which is to be conveyed to the uterus. The Fallopian tubes lie enclosed in the upper free margin of the broad ligaments, and vary in length from four to six inches, the right tube being frequently longer than the left. The uterine end of the tube is known as the isthmus, and possesses a canal scarcely large enough to admit a bristle. That portion lying between the isthmus and the fimbriæ is called the ampulla; it is curved, about one-fourth of an inch in diameter, and its canal will admit the extremity of an ordinary sound.

The tube is composed of three coats: an external, or peritoneal, a middle, or muscular, and an inner, or mucous coat, the latter being lined with ciliated columnar epithelium. Connective tissue and elastic fibres lie between the peritoneal and muscular layers. No glands exist in the mucous membrane, which is much folded in a longitudinal direction, especially in the ampulla.

THE OVARIES.

The ovaries, two in number, are situated one on either side of the uterus, behind the Fallopian tubes, in the posterior fold of the broad ligament. They are small, oval-shaped bodies, with a smooth surface, about the size of an almond, and weigh about 87 grains each. At the menstrual periods the ovaries increase in bulk and vascularity. At the menopause they present a fissured, lean appearance, from the monthly escape of ova, so that they are much reduced in size, and in elderly women the weight does not often exceed forty grains.

The ovaries are maintained in position by the broad ligaments (which make for them a kind of mesentery), and by a special ligament, the ligament of the ovary. Their location, however, varies according to age and the condition of the uterus. In the foetus they are placed, as is the fundus of the uterus, in the lumbar region. During pregnancy they rise in the abdomen with the

1) Op. Cit.

body of the uterus, with the sides of which they are then in contact. Immediately after delivery they occupy the internal iliac fossæ, where they sometimes remain throughout life, fixed by accidental adhesions. Frequently they are found turned backward, and adhering to the posterior surface of the uterus. Sometimes an ovary is found in the sac of an inguinal, a femoral, or even an umbilical hernia.

The ovarian ligament is about one and one-fifth inches in length, and extends from the inner end of the ovary to the corresponding upper angle of the uterus, just below the uterine origin of the Fallopian tube. It is a longitudinal fold of the peritoneum,

of

in

FIG. 12.—Ovary and Fallopian tube: *o*, *d*, Fallopian tube; *o*, ovary; *o*, *a*, fimbriated extremity of the tube; *p*, *o*, parovarium.

into which the unstriped muscular fibre of the uterus is prolonged.

The ovarian fimbriæ prevent the separation of the ovaries and the infundibulum tubæ. Thus the ovaries are kept in position by their attachments to the broad ligament, as well as by the ovarian and the infundibulo-pelvic ligaments. Their own specific gravity has also a share in determining their position, for the ovaries float at a certain level.

The ovary has an anterior and a posterior border, and an upper and lower surface. The posterior border is convex and free, the anterior is flattened, and attached to the broad ligament. The blood-vessels and nerves enter on the anterior border.

The ovary is invested with two coverings. The outer coat is

serous, but its surface differs from serous surfaces generally, in that its epithelium is made up of columnar nucleated cells, having a dull lustre. It is known as the germ epithelium. The inner coat is made up of condensed connective tissue, and is called the tunica albuginea. The two coats are so intimately blended that it is impossible to separate them. Within its outer investments lies the parenchyma of the ovary. The parenchyma is composed of two

FIG. 13.—Longitudinal section of an ovary from a girl eighteen years old: 1, Albuginea; 2, fibrous layer of cortical portion; 3, cellular layer of cortical portion; 4, medullary substance; 5, loose connective tissue.

distinct parts, the outer, or cortical, and the inner, or medullary. The medullary substance is very vascular, and has some unstripped muscular fibre around the branches of the ovarian artery. The cortical layer is the most important part of the ovary, as in it the ovula are formed. It contains the ovi-sacs, or Graafian vesicles, destined to secrete and expel the ovum, and an intermediate structure in which these vesicles are scattered, called the stroma. According to Barnes the limitation of the ovula to the cortical portion is most marked in infancy, and after puberty they are apt

to invade the medullary portion. Hart and Barbour say that they "are scattered through the whole substance of the ovary."

The Graafian follicles are very numerous. It is estimated that each ovary contains 36,000. They are at first microscopic,

FIG. 14.—Portion of vertical section through ovary of bitch: *a*, epithelium of ovary; *b, b*, tubules of ovary; *c*, young follicles, *d*, mature follicles; *e*, discus proligerus, with ovum; *f*, epithelium of second ovum in same follicle; *g*, tunica fibrosa folliculi; *h*, tunica propria folliculi; *i*, membrana granulosa (Waldeyer).

but become larger as they mature. The larger follicles lie nearer the surface than the smaller ones, having advanced from the deeper layer. Each follicle contains an ovum, and at least one is discharged at each menstrual nixus.

As an ovum matures, the Graafian vesicle increases in size, the overlying coats of the ovary becoming thinner and thinner, until finally rupture occurs, and the ovum is discharged. This is fol-

lowed by the formation of the yellow body, or scar, on the surface of the ovary, known as the corpus luteum, and of no importance



FIG. 15.—Diagrammatic section of Graafian follicle. 1, Ovum; 2, membrana granulosa; 3, external membrane of Graafian follicle; 4, its vessels; 5, ovarian stroma; 6, cavity of Graafian follicle; 7, external covering of ovary.

in gynecology, which never fully matures except when pregnancy takes place. The corpus luteum was at one time supposed to be



FIG. 16.—Diagrammatic representation of the pelvic peritoneum, as seen in a mesial section (Ranney) *P, P*, peritoneum; *R*, rectum; *U*, uterus; *B*, bladder, distended; *S*, symphysis pubis.

positive evidence of previous pregnancy, but this view is no longer tenable. Corpora lutea formed after conception takes place are larger, and continue longer, than those which result from the escape of an unimpregnated ovum.

In rare cases a woman may have three ovaries. Grohe mentions such a case in one who had borne children. It is not impossible that ova and ova-sacs may be dispersed in groups between the layers of the broad ligaments; and such anomalies may account for the continuance of menstruation after double ovariectomy.

FIG. 17.—Arterial vessels in a uterus ten days after delivery. The posterior aspect is shown. 1, fundus uteri; 2, vaginal portion; 3, 3, round ligament; 4, 4, Fallopian tubes; 5, right ovary; 6, abdom. aorta; 7, inf. mesenteric art.; 8, 8, spermatic arteries; 9, common iliac; 11, hypogast. art.

THE PAROVARIIUM.

This is a rudimentary structure, sometimes called the organ of Rosenmüller, consisting of a triangular group of small tubules situated in that portion of the broad ligament which intervenes between the outer end of the ovary and the distal extremity of the Fallopian tube. These tubules may vary in number from five or six to as many as twenty-five or thirty. They lie in the midst of the delicate cellular tissue which exists between the folds of the broad ligaments, and have no close attachments to any of the surrounding parts. Cystic degeneration is liable to occur within and around the parovarium, and such pathological possibilities make

this apparently insignificant organ quite important to the gynecologist.

THE VESSELS AND NERVES.

It is highly important to obtain an accurate knowledge of the vascular and nerve-supply of the female generative organs.

FIG. 18.—Nerves of the uterus. A, plexus uterinus magnus; B, plexus hypogastricus; C, cervical ganglion. 1, sacrum; 2, rectum; 3, bladder; 4, uterus; 5, ovary; 6, extremity of Fallopian tube (Frankenhaeuser).

The blood-vessels going to these parts are very numerous, and are derived from various sources. In the first place, the two spermatic arteries run through the broad ligaments to the uterus, and supply the ovarian tubes, the ovaries, and the fundus uteri with an ample, freely anastomosing, vascular network. Secondly, the

uterine artery, derived from the hypogastric, extends mainly through the broad ligament to the point of junction of the body of the uterus with the cervix; frequently, on the left side this artery is found to be double. From the hypogastric artery there are also derived a number of smaller arteries which supply the vagina—the vaginal arteries.

The blood-vessels of the external genitals come from the common pudic artery. Finally, the epigastric artery sends to the uterus a branch which goes to the upper uterine angle along with the round ligament.

These various arteries anastomose freely with one another, and alongside of them a great number of valveless veins, with

-8

FIG. 19.—Uterine and utero-ovarian veins (plexus papiniformis). 1, uterus seen from the front; its right half is covered by the peritoneum: upon the left half may be seen the plexus of utero-ovarian veins (internal spermatic); 6, utero-ovarian vessels covered by peritoneum; 7, the same vessels exposed; 8, 8, 8, veins from the Fallopian tube; 9, venous plexus of the hilum ovarii; 10, uterine vein; 11, uterine artery; 12, venous plexus, covering the borders of the uterus; 13, anastomoses of the uterine with the utero-ovarian vein (int. spermatic)

multiple intercommunications, extend to the point of origin of the arteries; that is to say, the pampiniform plexus extends upward to the spermatic; the uterine plexus laterally outward to the hypogastric, which also receives the vaginal plexus; and a third set extends with the round ligament outward to the abdominal coverings.

In the neighborhood of the veins and arteries, lymph-vessels likewise course through the broad ligaments.

The nerves of the uterus and ovaries are, for the most part, derived from the sympathetic, through its lateral hypogastric plexus, which is situated within the broad ligaments at the side of the uterus. The third and fourth and sacral nerves also send a few filaments to the Fallopian tubes and the ovaries.

Of greater importance than the uterine nerve-supply is a knowledge of the pelvic nerves, which are often made to suffer by

pressure, or from being involved in inflammation of surrounding structures. Those which are specially liable to suffer in this way are the nerves of the lower extremities, springing from the sacral plexus. The fourth and fifth lumbar nerves, the sacral nerves issuing from the foramina of the sacrum, and the superior coccygeus, together form the sacral plexus. The upper nerves cross the innominate line in their course over the wing of the sacrum. At this point irritation of the nerves, and consequent neuralgia, may be set up by the pressure of an obstetric instrument, by inflammation in the track of a wound, or by the pressure of a long persisting exudation.

The parts of the sacral plexus lying in the pelvic cavity may also become irritated, so that not infrequently we observe neuralgia and pareses in various regions of the lower extremities in consequence of inflammation of the pelvic connective tissue.

CHAPTER II.

GENERAL ETIOLOGY OF GYNECOLOGICAL DISEASES.

BEFORE proceeding to the examination of a patient supposed to be suffering from some gynecological disease, it is important that we have a proper knowledge of those general causes which may predispose to these affections. I do not refer to inherent constitutional causes, or to those which are in any way the result of accident, but only to those avoidable causes which arise from the lack of a proper observance of the laws of health, and which are, unfortunately, the basis of many of the diseases we shall be called upon to consider.

The fact that the female is physically inferior to the male is not due so much to her natural organization as to the fact that the mode of life which modern society forces upon her is unnatural, and begets physical degeneration. When we study the history of the lower animal kingdom we find that the physical capacities of the female are at least equal, and in many instances superior, to those of the male, and the same rule holds good as we approach the lower races of the human species. It is only when the deteriorating influences of refined society begin to operate, that we find the physical organization of the female depreciating, and her powers of endurance, as well as her capacity for resisting disease, becoming inferior to those of the male.

While the physician cannot hope to overcome these conditions, which, being multiplied in each generation, are becoming the inheritance of refined society, yet a knowledge of them may enable him to appreciate their influence in an individual case, and, by requiring a strict observance of proper hygienic rules, he may be able in some degree to overcome their baneful influences. I shall mention only the most important predisposing causes of gynecological disease, especially those which are essential to diagnosis as well as treatment. Nor is it necessary to spend much time in details, for the methods by which these conditions produce physical degeneration and consequent tendency to disease are too apparent to require lengthy elucidation.

These conditions may be enumerated as follows :—

1. Lack of fresh air and sunshine;
2. Lack of exercise;
3. Over-study and mental strain;
4. Excessive nervous development;
5. Improprieties of dress;
6. Imprudence during menstruation;
7. Imprudence after parturition;
8. Prevention of conception;
9. Induction of abortion.

Were it possible to induce women of the present day to take more exercise in the open air, whether in the way of work or recreation, and at the same time to attire themselves in a rational manner, discarding those well-known improprieties of dress which, though possibly developing grace and beauty, are not conducive to health, there would doubtless be less work for the gynecologist. It is a fact, however, that so far as this class of causes is concerned, the greatest harm is done before the age of maturity, and while the generative organs, and the nervous system which presides over these organs, are in the stage of development. Until puberty the girl and the boy develop in the same ratio, but after that time the boy develops slowly and almost imperceptibly, while the girl experiences a sudden transition, which necessarily involves a great strain upon the generative organs, and taxes the nervous system to its utmost. Could the girl at this time be entirely subject to hygienic rules, and controlled by wise counsel, having only in view her future health, this period might be passed in safety. But, unfortunately, this is seldom the case. The strain already placed upon her system by nature is greatly augmented by the artificial life which is now imposed upon her. She at once ceases to be a girl, and is taught to look upon herself as a young lady. Her time is entirely occupied in hard study, often in acquiring unnecessary accomplishments. The dress which she wore in girlhood is changed for whale-bones, corsets, skirts hanging from the hips, and high-heeled shoes. Her exercise is obtained at parties and balls. She is subject to continual emotional excitement, and if she have any spare time it is spent in devouring light and trashy literature. Could mothers be induced to appreciate the importance of a more rational system of exercise, dress, and education for their daughters; could they only be made to realize that there is plenty of time for education and society, and that the dress, diet and habits of a girl should not change until at least two or three years after puberty, the prevalence of gynecological diseases would be greatly diminished. In girls a lack of outdoor exercise, over-study, improper dress, imprudent diet, late hours, irregular

habits, novel-reading, and similar vices, which usually accompany a premature entrance into fashionable society, have much to do with laying the foundation for future ill-health and disease. Could girls remain girls, and be treated as such until development is complete, we would have fewer premature "young ladies," and more strong, healthy women, enjoying life for themselves, and transmitting to their offspring the physical basis of a strong constitution.

In all ages, during ovarian activity, but especially in the young, do the pernicious influences which have been mentioned tend to weaken the tone of the nervous system, by giving it an unnatural stimulation and excessive development, these being conducive to the neuralgic diathesis, which constitutes the foundation of many of the diseases peculiar to women. Dr. Thomas says (1) "that when there is an excessive development of the nervous system the physiological congestion of the pelvic organs attending ovulation produces pain which is known as 'neuralgic dysmenorrhea;' ovulation becomes irregular and abnormal, favoring the development of subacute ovaritis; the normal hypertrophy of the uterus consequent upon utero-gestation slowly and imperfectly passes off, subinvolution often remaining; while the enfeebled muscular supports of the heavy organ allow it to lapse from its position and assume that of flexion or version."

Imprudence during menstruation might well be classed in connection with the causes already mentioned, as more frequently occurring under such conditions; yet, aside from these, it constitutes a frightful cause of ovarian and uterine disease. Exposure to cold or wet, over-exertion, dancing, and other imprudences during menstruation, are greatly to be deprecated.

Another cause of pelvic disease, operating only in those of more advanced age, is imprudence after parturition. Especially does this occur on getting up and assuming ordinary vocations before involution is accomplished. The prevention of conception and the induction of abortion, are also equally pernicious. The use of the condom or preventive pessary, the use of cold injections immediately after intercourse, the withdrawing of the male organ before ejaculation, and other similar devices for the purpose of preventing conception, while to the ignorant apparently harmless, are, for obvious reasons, very deleterious to the female organism, and conducive to disease.

The cause last mentioned is growing to be one of the most prolific. The evil of criminal abortion is becoming so startlingly frequent in all classes of society that its ultimate consequences upon the human race are fearful to contemplate. I do not now speak

1) *Diseases of Women*, p. 45.

from the standpoint of the moralist, who sees in it crime without parallel in modern society, but I would call attention to the disease and misery which it entails. Its unfortunate but too willing victims suffer continually from inflammations, diseases of the pelvic viscera, and displacements of the uterus; they lead lives of suffering, and die before their time. In closing these remarks I will again quote from Dr. Thomas (1), who, in speaking on a similar subject, says: "Before any improvement is attained in this or any other matter, its importance must be estimated by, and a desire for it cultivated in, those whom it most nearly concerns. Neither appreciation of, nor desire for, physical excellence sufficiently exists among the refined women of our day. Our young women are too willing to be delicate, fragile, and incapable of endurance. They dread, above all things, the glow and hue of health, the rotundity and beauty of muscularity, the comely shape which the great masters gave to Venus de Medici and Venus de Milo. All these attributes are viewed as coarse and unladylike, and she is regarded as most to be envied whose complexion wears the livery of disease, whose muscular development is beyond the suspicion of *embonpoint*, and whose waist can almost be spanned by her own hands. As a result, how often do we see our matrons dreading the process of child-bearing as if it were an entirely abnormal and destructive one; fatigued and exhausted by a short walk on their ordinary household cares; choosing houses with special reference to freedom from one extra flight of stairs, and commonly debarred the great maternal privilege of nourishing their own offspring! These are they who furnish employment for the gynecologist, and who fill our homes with invalids and sufferers."

1) Op. Cit.

CHAPTER III.

EXAMINATION AND DIAGNOSIS OF GYNECOLOGICAL DISEASES.

RATIONAL HISTORY. MANUAL EXAMINATION.

RATIONAL HISTORY.—It is not to be assumed that every woman who presents herself for examination and treatment, is suffering with a local disease of the generative organs. There are many instances in which disturbance of the ganglionic nervous system, due to faulty nutrition and other causes, has produced functional disorders of the generative system, and where, especially in girls, a physical examination is not warranted until the physician by other methods is satisfied that a local disease exists. But when an examination has been decided upon, it should be pursued systematically, as we would examine a patient suffering from any other form of chronic ailment. In conducting it, I would impress upon the student the importance of following the excellent rules for the examination of patients as laid down by Hahnemann (1), rules which are too much neglected by his followers. Especially should the rule be adopted never to ask a question that can be answered by yes or no. Patients of this class are, as a rule, imaginative, and a mere suggestion from the physician is sufficient to lead them astray. "An unfaithful description of the disease would then result, and consequently an inappropriate choice of the curative remedy."

The examination should be taken down in writing. This should be in a systematic manner in each case. For this purpose it is well to have a record book, wherein, under appropriate headings, the history of the cases may be preserved with uniformity. But the use of such a scheme should not beget the habit of asking direct questions, or of interrupting the patient, when detailing her symptoms after the general history of the case, *i. e.*, age, occupation, family history, etc., have been recorded. I cannot better explain the character of information to be obtained and the method of recording it than to give a sample page from the record book which I use, the style of which may be changed to suit individual ideas. Of course in the case of maidens all questions concerning child-bearing, etc., are to be eliminated.

1) Organon. Sec. 84, 85, 86, 87, 88.

Case No.....Date.....Recommended by.....

Name.....Residence.....Age.....

Occupation.....Single, Married, Widow.....

Temperament and appearance.....

Family history.....,.....

.....

History of general habits and health.....

Age at first menstruation.....

Married....years. No. of children.... No. of miscarriages....

Criminal?.....

Last labor.....Miscarriage.....years since.....

Character of last labor, natural, tedious, rapid, instrumental,
time.....

Difficulties afterward.....

.....

Has not been well since.....

Symptoms during course of disease.....

.....

.....

Present condition.....

.....

.....

Menstruation,

{
Regularity;
Amount;
Character;
Pain at beginning, during, after, flow;
Character of pain;
Locality of pain.

Leucorrheal Dis-
charges.

{
Amount;
Color;
Consistency;
Odor;
Acridity.

Physical examination discloses.....

PHYSICAL EXAMINATION.—Having obtained a rational history of the case, and being satisfied that local disease is present, the next step is to make a physical examination. There is often considerable difficulty in deciding as to the necessity of this step, especially in the unmarried. I cannot too strongly deprecate the habit of making local examinations in young and growing maidens, until after every other resource has been exhausted. Indeed, even in married women, local examinations are becoming too frequent; but I am convinced that here, as a rule, the fault does not lie with the physician. A woman imagines she has local disease, and unless the physician makes a physical exploration of the parts she is not satisfied, either with him or with his diagnosis and treatment, and the chances are that she will call in a physician who is more willing to cater to her opinions and desires, even though unexpressed in words. A physical examination may be either manual, or instrumental. Under no circumstances should the instrumental examination precede the manual. Often the latter will prove all that is required; at least the information thus obtained is essential to a safe instrumental examination, and must be the chief guide as to its necessity.

In order to conduct an examination conveniently and with success, it is important, in office practice at least, that the physician be provided with some sort of a chair or table designed for this purpose. Several kinds of tables have been devised, but these are better adapted for operations, and are not suitable for general office purposes. Aside from being inconvenient and unsightly, they excite more fear on the part of the patient than does an ordinary gynecological chair. Of the latter there have been numerous patterns invented, each of which probably possesses some advantages, but as a rule they have too much machinery, and are too complicated to be satisfactory. I am convinced that the numerous positions in which most of these chairs can be placed by the various cranks and ratchets with which they are supplied are practically of no value.

The latest design of chair for gynecological work, and the one, in my opinion, best calculated for that purpose, at least for the general practitioner, is the "combined office, gynecological chair and operating table" recently devised by Sharp & Smith, of Chicago. This chair is very simple in its adjustment, is easily operated, and when not in use forms a handsome and comfortable office chair. Fig. 20 represents the "office" position of the chair. Fig. 21 represents the chair turned over from the back. It can be so turned with the greatest ease, requiring comparatively no exertion. In this cut is also represented an extension which is attached to the foot end, thereby making the chair in table form

sufficiently long for any operation. Fig. 22 represents the chair with extension removed from the foot to the right side for "Sims' position." Fig. 23 represents the chair in the ordinary gyneco-

FIG. 20.

logical position, with stirrup attachments, which can be placed at any angle or distance from the foot of the chair. Under the seat

FIG. 21.

will be seen a drawer, which contains all accessories, including the extension piece, leaving the chair when not in use as shown in

Fig. 20. This chair works without cranks, levers or ratchets, any position can easily be obtained instantly, and it is movable in all directions with but the strength of one finger.

FIG. 22.

FIG. 23

A convenient ottoman and a leather covered hair pillow accompany this chair when desired.

MANUAL EXAMINATION.—This may be either:

- (1) Abdominal;
- (2) Vaginal;
- (3) Bi-manual—abdomino-vaginal;
- (4) Rectal.

(1) **ABDOMINAL EXAMINATION.**—As a rule, it is advisable first to examine the external abdomen, though in many instances it will be apparent that such an examination is unnecessary. In timid patients, a gentle palpation of the abdomen, while perhaps unnecessary, leads gradually to the vaginal examination, which is most dreaded. At the same time, the patient lying upon her back with her knees flexed, the physician can by the use of one or both hands determine the locality of any abnormal enlargement or tenderness. Should the former be present, he may by inspection, palpation, auscultation and percussion decide as to its exact location and character. In connection with a manual examination it may be necessary to inspect the external genitals, though this should not be a routine practice, and is not to be thought of unless there are reasons to believe it necessary. In this manner we may discover an absence of hair on the mons veneris, suspicious sores or other evidences of specific disease; erosions, eruptions, condylomata, urethral caruncles, irritable spots causing vaginismus, labial abscess, parturition tears of perineum and labia, prolapsed pelvic organs, or external or internal hemorrhoids.

(2) **VAGINAL EXAMINATION.**—The vaginal or digital examination is the most common of all methods, and is the one usually understood when the term “examination” is used.

This examination may be made as the circumstances of the case require, either in the standing, semi-prone or dorsal positions, the latter being usually the most desirable, and the one ordinarily adopted in this country. In this position the patient is in a better shape for an abdominal, bi-manual or instrumental examination, should either of these be subsequently deemed necessary. The index finger having been carefully smeared with vaseline or soap, is gently introduced within the vulva. This is best accomplished by placing the back of the hand, the index finger extended, against the upper part of the vulva. The point of the finger will then rest between the buttocks and against the perineum. By gradually raising the hand and pressing backward with the finger the latter enters the vaginal orifice, and is then rotated by turning the hand into its normal position. If the vaginal orifice is small and not easily found, the finger may be drawn upward until it touches the smooth vestibule, and then passed backward along the base of the vestibule into the vagina. Care should be taken not to enter the rectum by mistake, as is sometimes done, notwithstanding the resistance of the sphincter ani.

The vaginal examination reveals the following conditions:

(1) The presence or absence of the hymen; the presence of spasm; the presence at the vulva of a foreign body—polypus or malignant growth—or a prolapsed uterus.

(2) The condition of the vagina as regards temperature, smoothness, elasticity, tone and tenderness of its walls; contraction of its passage; fistula; foreign bodies, etc.

(3) The presence of fecal accumulations in the rectum, or foreign bodies within the rectum or bladder.

(4) The shape, density, size, mobility, direction, length and sensitiveness of the cervix, and the presence of fissures, indentations or excrescences upon its surface.

(5) The shape, size and consistency of the lips of the os uteri; its patency; lacerations; polypi; fungoid excrescences; fragments of abortion; cancerous masses, etc.

(6) Abnormalities in the fornices. In the posterior fornix there may be fecal accumulations; a knuckle or semi-hernial protrusion of the bowel; a retroverted or retroflexed fundus uteri; acute or chronic inflammatory products; hematocele; fibroid tumor of posterior uterine wall; cancerous deposits; ovarian cyst or inflammation; ascites; rarely extra uterine fetation. In the anterior fornix:—anteverted or anteflexed fundus uteri; inflammatory deposits and cellular exudations; fibroid of anterior wall; blood effusion; prolapsed ovary, etc. All these conditions are rare in the anterior fornix unless it be the first named.

In the lateral fornices may be found: continuations of lymph or blood exudates as found posteriorly or anteriorly; lateral uterine displacement; lateral fibroids; prolapsed or cystic ovary; dilatation of Fallopian tubes.

(3) BI-MANUAL EXAMINATION.—Of late years the bi-manual examination is being recognized as the most important of all methods of diagnosis, and it is usually considered that no examination is complete or approximately correct without it. It consists in introducing one or more fingers of the right hand into the vagina, while the other is placed upon the abdomen about midway between the umbilicus and pubes, and the fingers made to press in the direction of the axis of the pelvic inlet. Thus, while with one hand the pelvic cavity is explored, with the other hand not only are the contents of the pelvic cavity brought within its reach, but the fingers can be slowly and gently pressed downward from above the brim and made to meet those in the vagina, unless a normal or abnormal substance intervene. In this way the size and relations of the pelvic contents are estimated, and any abnormal exudations or growths are detected and defined with comparative certainty.

The bi-manual method is always available except when carcinoma or acute inflammation is present. It is most difficult of performance in stout multiparous women, and in cases of pelvic inflammation, and occasionally under such circumstances an anæ-

thetic is required, or the rectal method of examination may be substituted.

It is desirable that the practitioner persistently practice this method of examination in order that it may become familiar to him, as it constitutes the most satisfactory and accurate method of pelvic diagnosis. Closely associated with the bi-manual or abdo-

FIG. 24 —BI-MANUAL EXAMINATION The upper hand is not shown (Hart).

mino-vaginal method are other bi-manual methods, which peculiar circumstances and conditions sometimes require. These are:

1. Recto-abdominal (finger in rectum and left hand above);
2. Recto-vagino-abdominal (middle finger in rectum, index finger in vagina, and left hand above);
3. Vesico-vagino-abdominal (middle finger in vagina, index finger in bladder, and hand above).
4. Vesico-rectal (index finger of one hand in bladder, index finger of other hand in rectum).

(4) **RECTAL EXAMINATION.**—In some cases it becomes necessary to examine the pelvic organs by introducing the finger, well oiled, into the rectum. The method is repugnant alike to patient and physician, and the knowledge obtained is necessarily limited and obscure, especially in comparison with the results of a bi-manual examination. For these reasons it should never be resorted to, except where circumstances make it necessary. There may be

cases, especially in young girls, in which a vaginal examination should be avoided, or where, for other reasons, the vaginal and bi-manual methods cannot be employed; then the examination may be made per rectum. In cases where there is obstruction of the genital passages, or where in virgins we suspect hematocoe or retroversion, the rectal examination is valuable. Prolapsed ovaries are more easily detected by this method, and it is the only one available for the diagnosis of internal hemorrhoids, rectal polypi, fissures, ulcers, strictures and cancerous growths within the rectum. In making the rectal examination by simultaneously compressing

FIG. 25.—ANTERIOR ABDOMINAL SURFACE OF FEMALE, with upper hand placed for Bi-manual.

the abdomen with the other hand we have the recto-abdominal method already referred to, which is the most valuable of the various rectal methods.

I will merely mention Simon's method of rectal examination, which consists of passing the whole hand into the rectum even up to the transverse colon, the patient being anaesthetized. While this method doubtless offers satisfactory diagnostic results, it nevertheless involves great danger of injury to the patient, even to rupture of the peritoneum in the left flank, and thus the good results are more than counterbalanced. As one author says, "an

accurate diagnosis may be purchased too dearly, and an approximate one may be preferable, if it is more consistent with the recovery of the patient." A careful bi-manual examination, aided when necessary by an anæsthetic, will give equally satisfactory results.

I consider Simon's method as an unjustifiable procedure, and believe it cannot be too severely condemned.

CHAPTER IV.

INSTRUMENTAL EXAMINATION.

MANUAL examination having proved insufficient for diagnostic purposes, we may resort to an exploration of the parts by the use of instruments. In conducting such an examination the instruments chiefly used, either singly or conjointly, are:

(1) The vaginal speculum; (2) the uterine sound or probe; (3) cervical dilators; (4) the curette; (5) the aspirator.

(1) **THE VAGINAL SPECULUM.**—A great variety of vaginal specula have been invented, most of which have their peculiar advantages, but for practical purposes it is necessary to describe but three typical varieties:

1. The cylindrical, or Fergusson speculum;
2. The bi-valve;
3. The duck-bill, or Sims' speculum.

1. **THE CYLINDRICAL, OR FERGUSSON SPECULUM.**—Cylindrical specula are made of various materials, but the Fergusson speculum, which is unquestionably the best, consists of a simple

FIG 26.—Fergusson Speculum.

glass tube made of various sizes, coated with reflecting mercury, and covered with caoutchouc. The proximal end is trumpet-shaped and the distal end beveled, so that its anterior side is shorter than the posterior. It is usually introduced with the patient in the dorsal position, but is equally useful in the semi-prone position. The speculum, previously anointed with oil or vaseline, is pressed against the perineum, along which it is gently insinuated until the beveled edge is entirely within the vagina, when it can be readily pushed up to the cervix, though it is often difficult to engage that organ in its lumen. The objections to this speculum are, that it is sometimes difficult of introduction, its field of vision is limited, and it is very fragile. Its special advant-

ages lie in its illuminating power, and that it is readily cleansed, and is not damaged by the action of acids and other corrosive substances, which often ruin a metal speculum. For diagnostic purposes the cylindrical speculum is of little value, but it is very convenient in making local applications to the vagina or external os.

2. THE BI-VALVE.—A multitude of valvular specula have been invented, constructed with two, three, four or more blades. Those with three or more blades, such as Nott's and Nelson's, are

FIG. 28 —Nott's Speculum

very little used, and possess no advantages over those with two blades, while the fact that the lax vaginal walls may drop between the anterior blades and obstruct the vision is a serious disadvantage. Of the many bi-valve specula Cusco's or Miller's are the simplest, and are equally efficient as those of more complex construction. Hale's, Jackson's and Graves' are base-expanding specula, and are very popular instruments. The two former dilate by screw power, and are probably the best of this class. Graves' speculum is expanded by means of a thumb and finger pressure that I have found awkward to manipulate. This speculum may also be converted into a Sims', but it makes a poor Sims', and when we consider the great reduction that has been made in the price of these instruments within the past few years, and the low figures at which they can be purchased, it is hardly advisable to sacrifice a good bi-valve speculum for the sake of obtain-

ing the advantage of an unsatisfactory Sims'. Graves' speculum, as a simple bi-valve, answers its purpose well enough, but as a base expander or a Sims' it is a failure in both instances.



FIG 29.—Cusco's Speculum

FIG 30.—Miller's Speculum

FIG 31.—Hale's Speculum.

A bi-valve speculum is introduced with the blades closed and corresponding in direction with the vaginal fissure; it is then turned until the blades assume an antero-posterior position, when it is pushed upward to near the cervix; here the blades are ex-

panded and held open by means of a screw. The cervix usually engages in the lumen, but if not it can be made to do so by slightly turning the instrument from right to left, or by slightly withdrawing and again pushing it into position. Bi-valve specula

FIG. 32.—Jackson's Speculum.

FIG. 33.—Graves' Speculum.

possess the advantage over cylindrical specula in being more easily introduced, self-retaining, afford a wider field of vision, and permit a freer use of the sound or other instrument.



FIG. 34.—Sims' Speculum.

3. **THE DUCK-BILL, OR SIMS' SPECULUM.**—This speculum is the only one we have that in any degree approximates perfection, and should be the only speculum used in gynecological practice; though, unfortunately, not being self-retaining, it is comparatively little used by the general practitioner. Sims' speculum, which is represented in Fig. 34, is simply a perineal retractor, and by the aid of a depressor it becomes in reality a bi-valve without the disadvantages and more complicated mechanism of the latter. It can be used only in the left lateral or semi-prone position, familiarly known as Sims' position. It is introduced by the patient's being placed on the left side, the left arm under and behind her, the legs

strongly flexed upon the thighs, and these again upon the abdomen, while the right knee is thrown forward and over the left knee on the table; this turns the patient over on the chest and partly on the abdomen. In this position the speculum is introduced by placing the forefinger of the right hand in the concavity of the blade to be used, and the finger and instrument introduced together. When



FIG. 85.—Sims' Depressor.

well inserted, the perineum is drawn backward and the instrument given to an assistant to retain in place.

In the use of Sims' speculum the all-important thing is the position of the patient, and unless that be properly attained the examination will not be successful. If after the speculum is introduced the parts are not sufficiently exposed, Sims' depressor

FIG. 86.—Simon's Speculum.

may be placed upon the anterior wall, which is thus held out of the way.

Bozeman's modification of Sims' speculum is heavier than the original, has the blades meeting the handle at an acute angle, and

the blades more concave on the anterior aspect. Battey's modification has one short blade, which meets the handle at a more acute angle than Bozeman's. Simon's speculum is considered by

FIG. 37.—Simon's Retractor or Plate.

Schroeder, Fritsch and other distinguished gynecologists as a material improvement on Sims' speculum. This instrument can also be used in the dorsal position. The blades are formed exactly after those of Sims', but are movable on a handle, so that they

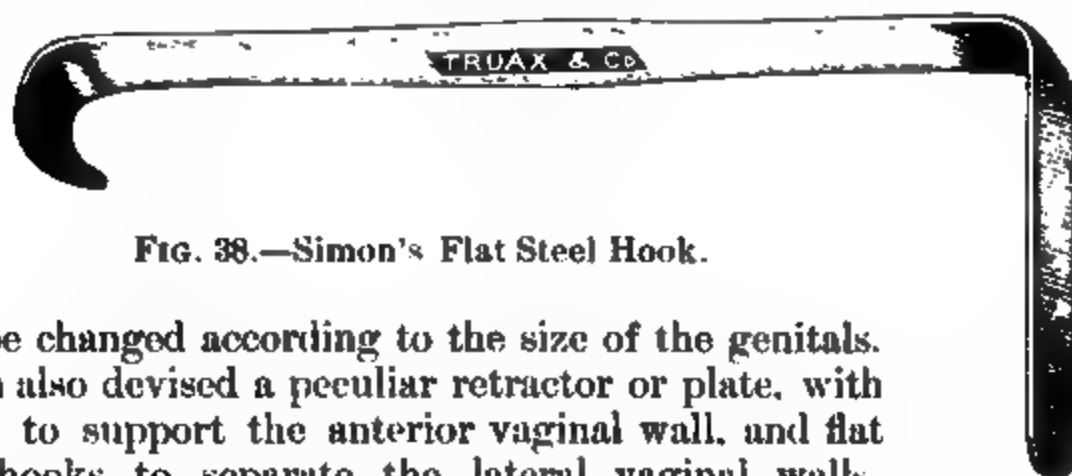


FIG. 38.—Simon's Flat Steel Hook.

may be changed according to the size of the genitals. Simon also devised a peculiar retractor or plate, with which to support the anterior vaginal wall, and flat steel hooks to separate the lateral vaginal walls. This speculum is not so often used for diagnostic purposes, but for operations, especially in Europe, according to Fritsch, it is "in universal use."

Porter's speculum or perineal retractor differs from Simon's speculum mostly in the fact that the handle is placed at an obtuse angle, and by having a flange which assists in holding up the overhanging buttock. The position of the handle admits of the instrument being used with the patient on the back or side, and does not necessarily require an assistant. The instrument is made in

four sizes, the smaller blade being adapted to operations about the rectum or virgin vagina.

One of the best modifications of Sims' is that devised by A. Reeves

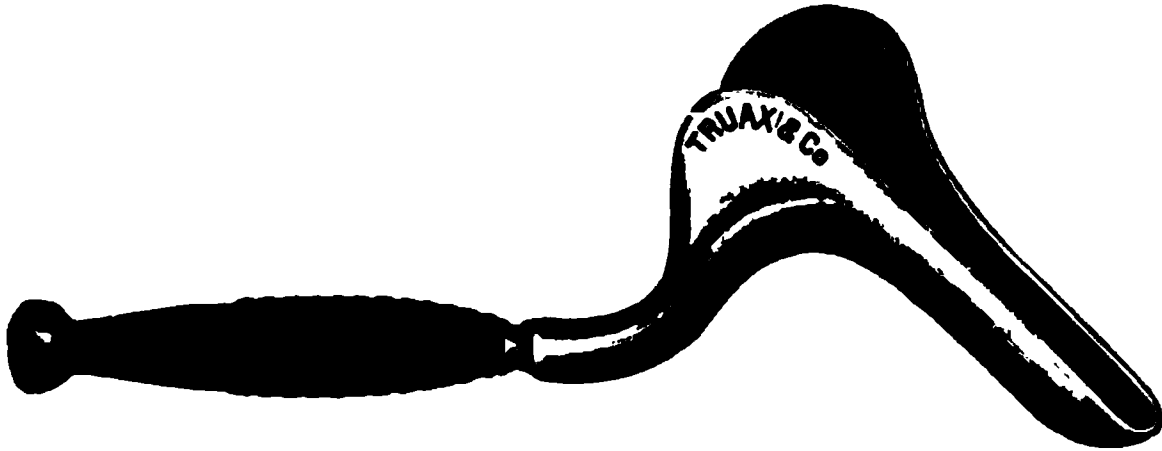


FIG. 38½. —Porter's Speculum.

Jackson. This instrument is preferred by many because of its simplicity, its very short and flat blade, and the convenient shape of the handle. Besides serving as a speculum it makes an excellent retractor.

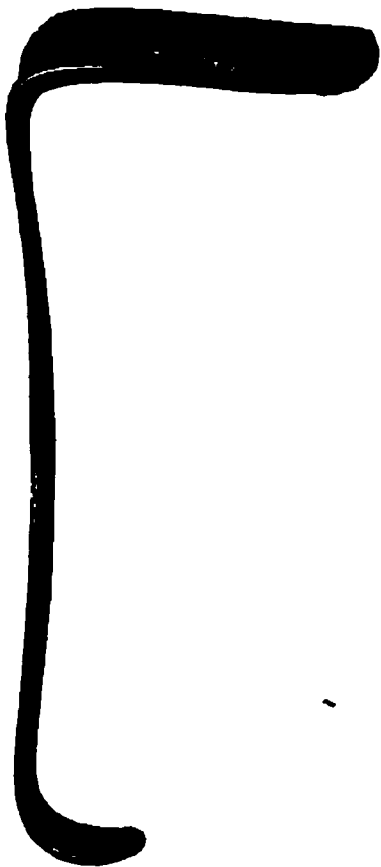


FIG. 39.—Jackson's Modified Sims' Speculum.

Owing to the fact that Sims' speculum, as well as other modifications already mentioned, are not self-retaining, thus requiring an assistant, they have not come into general use. To overcome this objection a number of modifications of Sims' speculum have been invented, but the self-retaining apparatus is usually so complicated that they have not proved satisfactory. Of these I will mention Emmett's perineal retractor (Fig. 40), Hunter's modified Erich (Fig. 41), Dawson's modification of Sims' (Fig. 42), and one that I like much better than either of these, which is Thomas' again modified by Dr. Mann of Buffalo (Fig. 43). The latter consists of a Sims' blade, with an attached depressor so articulated to the blade as not to interfere in any way with the field of vision or with instrumental manipulation, and—a most important point—so as not to distend in the least the ostium vaginae. A hook is also placed on the depressor shaft to which a tenaculum, used to draw down or steady the uterus, may be attached. Dr. Grandin has recently added some modifications to the Mann speculum, which I have not seen, which he describes as follows (1): "The instrument is altered by adapting the depressor to the lower surface of the blade fitting a flange to hold up the superior buttock to the upper surface of the blade, and by shortening the depressor bar." Dr. Grandin says, "This instrument may be held by the left hand, or

1) American System Gynecology. Vol. I, p. 312.

else, when the depressor handle has been screwed down and the handle of the instrument removed, we have a self-retaining speculum, and both hands are free. I have tested this instrument faithfully, and am able with it to perform in Sims' position, unassisted, any manipulation (applications to endometrium, curetting, etc.,) proper to office practice." It would seem that with such an excellent instrument as this, it ought not to be necessary to so frequently resort to the cylindrical or bi-valve specula for diagnostic purposes, though after the diagnosis is made they may do very well for ordinary local treatments.

FIG. 40.—Emmett's Perineal Retractor.

The chief advantage of the Sims' speculum is that in connection with the semi-prone position which

FIG. 41.—Hunter's Modified Erich Speculum.

allows the abdominal viscera to fall away from the back and pelvis by their own weight, the vaginal walls are separated, thus allow-



FIG. 42.—Dawson's Modified Sims' Speculum.

ing the air to enter which distends the vagina, making an open cavity, and allowing a full inspection of its contents, and a free

manipulation of instruments. Abnormal conditions, especially a lacerated cervix with ectropium, are neither distorted nor modified, this not being the case with any other speculum. For gynecological operations Sims' speculum either original or modified is the



FIG. 43.—Mann's Modified Thomas' Speculum.

only one that can be used with any degree of convenience or success.

4. THE UTERINE SOUND.—For gynecological diagnosis the uterine sound constitutes, all things considered, the most important instrument. The form devised by Simpson is the best, and



FIG. 44.—Simpson's Uterine Sound.

the one in general use. It consists of a nickel-plated copper rod, twelve inches in length, made flexible so that it may be curved to correspond with the shape or curvature of the uterine cavity, yet sufficiently firm to admit of its being used as an elevator in uterine displacement. It is provided with a suitable handle, which is roughened on the side corresponding with the direction towards which the instrument is curved, so that the direction of the latter is known by the position of the handle. Two and one-half inches from the point is a knob which marks the depth of the normal uterus. Below this knob the sound is graduated in inches so that the operator is constantly informed of the progress the instrument is making. On account of the thickness of Simpson's sound it is not adapted for use where there exists sharp flexion, stenosis of the cervix, etc. For this reason there have been devised several

modifications, which will be noticed later. While the sound may reveal important diagnostic indications, and no examination can be considered complete without it, yet its injudicious use may result in serious injury. Fortunately those conditions where the passage of the sound may prove injurious are so well understood that with ordinary judgment and care no danger need be apprehended. The sound should never be introduced:

- (1) During a menstrual period;
- (2) During pregnancy;
- (3) During the presence of an acute attack of pelvic inflammation, either ovarian, uterine, peritoneal or cellular.

The introduction of the sound should always be preceded by a careful bi-manual examination for the purpose of eliminating the above contra-indications for its use, and to ascertain the position of the uterus.

The sound may be introduced in either the dorsal or semi-prone positions, and with or without the aid of a speculum. Both are a matter of habit. I think as a rule it is more satisfactory to have the patient in the dorsal position, and that the use of the speculum is only an unnecessary hindrance.

METHOD OF INTRODUCTION.—With the patient lying on her back, the operator places the index finger of the right hand on the lower lip of the os uteri to serve as a guide. Then lightly holding the sound in the fingers of the left hand, its concavity upward, it having already been curved to correspond with the supposed curvature of the uterus, its point is carried along the guiding finger until it reaches and penetrates the external os. It is then passed onward about an inch farther where it will usually meet with an obstruction. This may only be the normal internal os, and be easily overcome by a slight tilting backward of the handle and careful steady pressure, no actual force being exerted. The same care and gentleness should be exercised that is employed in introducing a catheter. It must be remembered that at this point the direction of the uterine canal changes, and that a corresponding change must be given to the point of the sound, which is done by depressing the handle. As the sound passes on, its progress is carefully noted until the knob which marks the normal uterine depth has reached the external os. If the point of the sound is then at the fundus a slight resistance will be felt, and unless it is handled with extreme gentleness the patient will complain of pain. If at any time the sound fails to pass easily it must be withdrawn, and reintroduced with the curvature slightly changed according to the supposed position of the uterus. Owing to the danger of perforating the uterine walls no force whatever should

be used. Perforation is liable to occur especially when the uterus has been softened by disease. In case flexion is present, the sound must be curved to correspond, and after its point reaches the internal os, the handle must be depressed, elevated or rotated, according to the direction given it by the uterine canal. The method of introducing and using the sound in flexion and other pathological states is more fully considered under their respective heads.

For purposes of diagnosis the sound informs us as to the patency and size of the external os and of the cervical canal, and their condition as regards smoothness or roughness of the lining membrane. It does give a knowledge of the sensitiveness and patency of the internal os; the degree of flexion; the depth of the uterus; the sensitiveness of the endometrium; the mobility of the uterus; the exact position of the fundus; and the general direction of the uterine axis.

This information may in some instances be made clearer by combined manipulation. The sound having been introduced to the fundus and held with the right hand, the left hand is placed upon and made to depress the abdomen, as in bi-manual examination, and this pressure is communicated through the sound to the hand which is holding it.

As to the modifications of Simpson's sound, I will mention but a few; notably that of Thomas, which is a probe made of

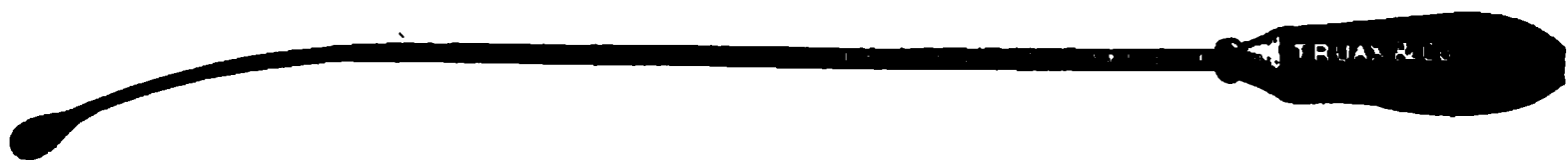


FIG. 45.—Thomas' Uterine Sound.

whalebone, is flexible, and is especially designed for measuring the depth of a tortuous uterine canal, made so by a fibrous tumor. Fitch's sound is especially valuable for obtaining accurate measure-



FIG. 46.—Fitch's Uterine Sound.



FIG. 47.—Sims' Uterine Sound.

ment. Sims' sound is not graduated and is more flexible than Simpson's, being more of the nature of a probe, and especially adapted to use with Sims' speculum in the semi-prone position.

Jenks' spiral sound is, according to Emmett, an invaluable instrument, under certain circumstances, for ascertaining accurately the depth of the uterine canal. Dr. Emmett and other distinguished gynecologists seldom use Simpson's sound, preferring simply a



FIG. 48.—Jenks' Spiral Uterine Sound.

surgeon's long silver probe set in a handle. For the use of the general practitioner the probe is not usually satisfactory, as it conforms too readily to any abnormal position of the uterus, and often misleads one who is not thoroughly accustomed to its use.

5. CERVICAL DILATORS.—In order to explore the uterine cavity it usually becomes necessary to dilate the cervical canal. For this purpose there are four classes of instruments: (1) Tents; (2) Dilatable tubes of soft rubber; (3) Graduated hard rubber or metal dilators; (4) Expanding steel dilators.

1. TENTS.—These are slightly tapering or pencil-shaped instruments of different sizes and lengths, prepared from materials having the power of absorbing moisture from the surrounding parts, causing them to expand, thus dilating the cervical canal. They are constructed either of compressed sponge, laminaria, tupelo, or of compressed slippery elm bark. Medium and large tents should be perforated lengthwise, except at their apex, thus adding to their power and rapidity of expansion, and facilitating their introduction by means of a probe or applicator. They should also have a strong thread well attached for the purpose of assisting in their removal. Tents are usually straight, but can be made with any degree of curvature that may be required.

Sponge tents are usually impregnated with carbolic acid or some other antiseptic. They dilate more rapidly than the other varieties, but are less powerful in their dilating influence. Sponge tents are very objectionable, for the reason that in dilating they cause a rough, ragged appearance of the cervical canal, and more or less impair its epithelial covering, sometimes setting up an inflammatory action that is usually of a septic character, notwithstanding all antiseptic precautions. For this reason they are gradually being displaced by the tupelo and slippery elm for exploring purposes. Laminaria tents are not very popular for diagnosis, as they possess feeble dilating power, and their dilation does not take place sufficiently at the internal os, where it is most desired.

The tupelo (root of the *nyssa aquatica*) is quite popular. Dr.

Grandin (1) says "it is the agent par excellence in tent form for dilating purposes. Its expansibility is nearly equal to that of the sponge; it dilates equably throughout its length; it does not abrade the cervical tissues to the extent that the sponge does; it is exceptional for its proper use to be followed by sepsis." According to Hart and Barbour, the special advantage of tupelo tents is due to their smaller size and the fact that several may be passed into the same cervix. They are specially useful, therefore, in

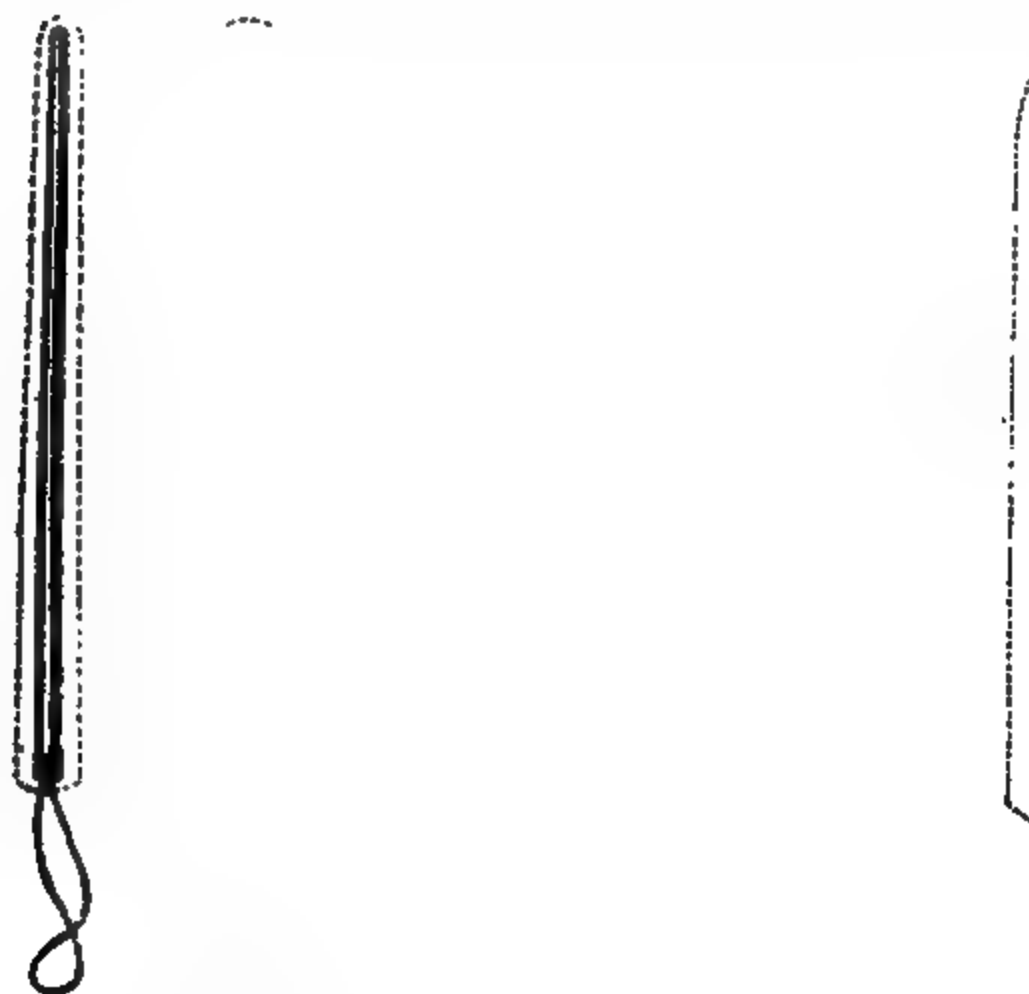


FIG. 49.—DIAGRAM to show relations between size of Tupelo Tent, before and after expansion. The dotted outside line indicates the size of the tent after expansion (Mundé).

cases of narrow cervix and flexions. The accompanying cut (Fig. 49) represents their power of expansion.

For the past two years I have used chiefly the tents made from compressed slippery elm bark (Fig. 50). These tents possess a less powerful but more rapid expansion than the tupelo. They will usually dilate to twice their diameter in one or two hours, at which time a larger one, or several more of the same size, can be introduced with perfect safety, as they exude a slippery substance which not only serves as a natural lubricant, but also protects the mucous membrane from injury. It may be said

1) Op. Cit., p. 321.

- of elm tents that they never set up inflammation, which is a very important consideration.

Tents are used not only to dilate the cervix for diagnostic and operative purposes, but they are also employed to tampon the cervix in case of hemorrhage, especially after abortion, and are occasionally used to correct flexions of the uterus and overcome stenosis of the cervix.

Hollow elm tents are also available as applicators, for the

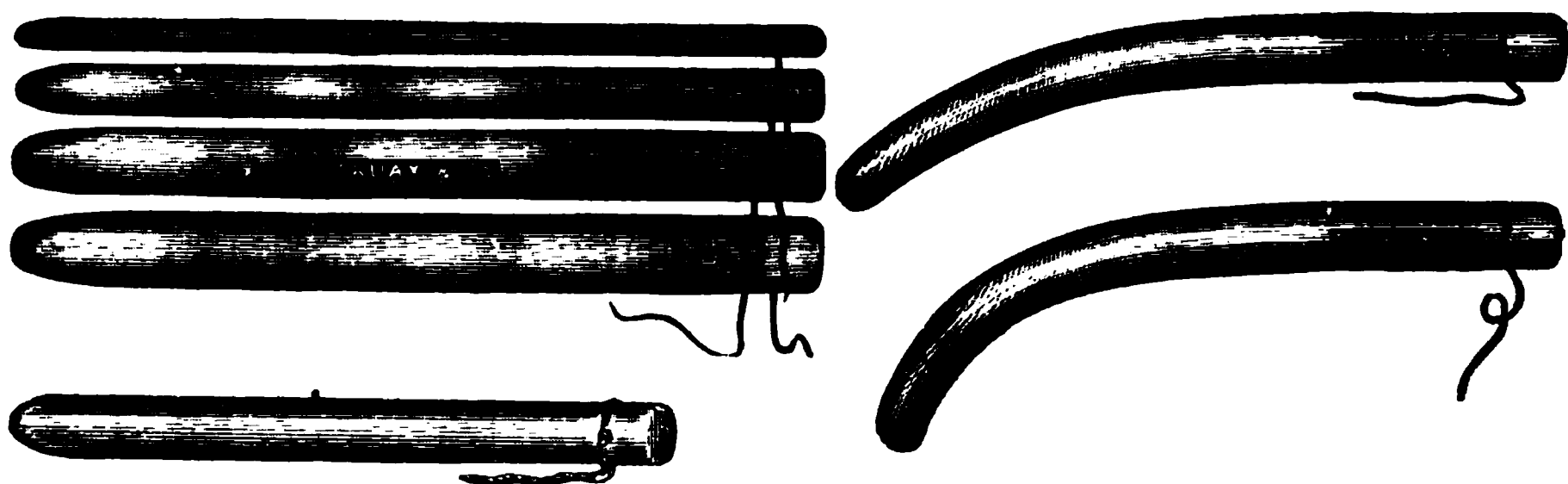


FIG. 50.—Slippery Elm Tents.

exuding slime carries the drug out from them instead of into them, and gradually dilutes it, thus limiting its action."

Tents are most conveniently introduced while the patient is in the semi-prone position. The cervix, being exposed by Sims' speculum, is slightly drawn down and carefully steadied by a volsellum or tenaculum and the tent introduced by means of a tent applicator (Fig. 51) or a pair of dressing-forceps. It should be

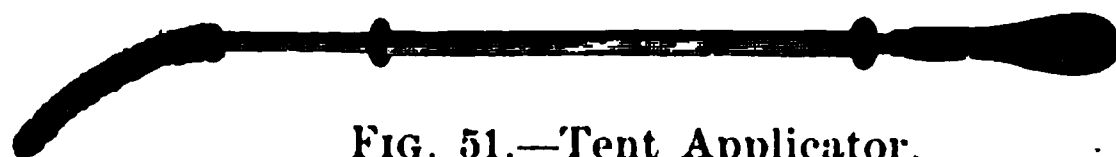


FIG. 51.—Tent Applicator.

passed, if possible, nearly up to its full length, just projecting beyond the os externum. If the applicator is used while the wire is being withdrawn the sheath should be pressed against the tent in order to keep it in place. The tent is then kept in place by means of a suitable carbolized cotton tampon, and the patient should, if possible, remain quietly in bed. The largest-sized tent should be used that can be introduced without force. If after about twelve hours the cervix is not sufficiently dilated, the vagina and cervical cavity may be thoroughly cleansed with carbolized water, and a second tent, sufficiently large to fill up the partially-dilated canal, introduced in the same manner as the first. Especially in using sponge tents must the strictest cleanliness be observed, on account of the danger of septicæmia. Notwithstanding the apparent simplicity and harmlessness of tents, the danger in using

them should not be underestimated, nor any precautions neglected that will insure safety.

2. **DILATABLE TUBES OF SOFT RUBBER.**—The typical instru-



FIG. 52.—Molesworth Uterine Dilator

ments of this variety are Molesworth's dilators (Fig. 52), and Emmett's water dilator (Fig. 53). The former is the most available instrument for general use. These dilators are safer than



FIG. 53.—Emmett's Water Dilator

FIG. 54.—Allen's Surgical Pump

tents from a septic standpoint, and will effect greater dilation, but they possess one serious disadvantage common to all instruments composed of soft rubber, and that is that they are liable to prove inefficient just at the time when most needed. Then, too, they cannot be relied upon to stand a continuous strain without bursting.

Allen's surgical pump (Fig. 54), which is described more fully in this chapter as an aspirator, is supplied with attachments that overcome all the objections above mentioned. This instrument possesses no piston, valve or stop-cock, and there is consequently but little liability of its failure to work at all times. The rubber bags used as dilators are inexpensive, can be purchased by the dozen, and may be prevented from bursting by enclosing in silk sacks, which accompany the instrument, or can be quickly made at home. These sacks, by confining the expansion of the tube within prescribed limits, concentrate the force at such points as offer resistance, or tend to prevent the dilating of the tube to the full size and shape of the sack. The instrument can thus be made much more powerful than the Barnes and other dilators of this class, can be introduced much easier, and, as it dilates equally in all directions, it is much more to be preferred than any of the metal instruments. It accomplishes its results with less tendency to inflammation than most other dilators, and with it there is little danger of laceration. Fig. 55 shows a few of the shapes most



FIG. 55.

commonly used in general work. Fig. 56 shows the form the tube will take if not enclosed in a cover, while Fig. 55 shows what may be accomplished with them.

This novel instrument also serves as an aspirator, urethral dilator, syringe, douche, tampon and breast pump, and thus becomes of exceptional value to the gynecologist.

Fig. 56 $\frac{1}{2}$ shows the instrument used as a tampon with two bags attached, for the purpose of accurately measuring the amount of dilatation produced. One bag is first attached and expanded to the size desired. Then, the bag to be used on the operation is

attached to the other end of the instrument, and, after being introduced, the current is reversed, and the contents of the first bag are forced into it. The amount of dilatation can also be measured

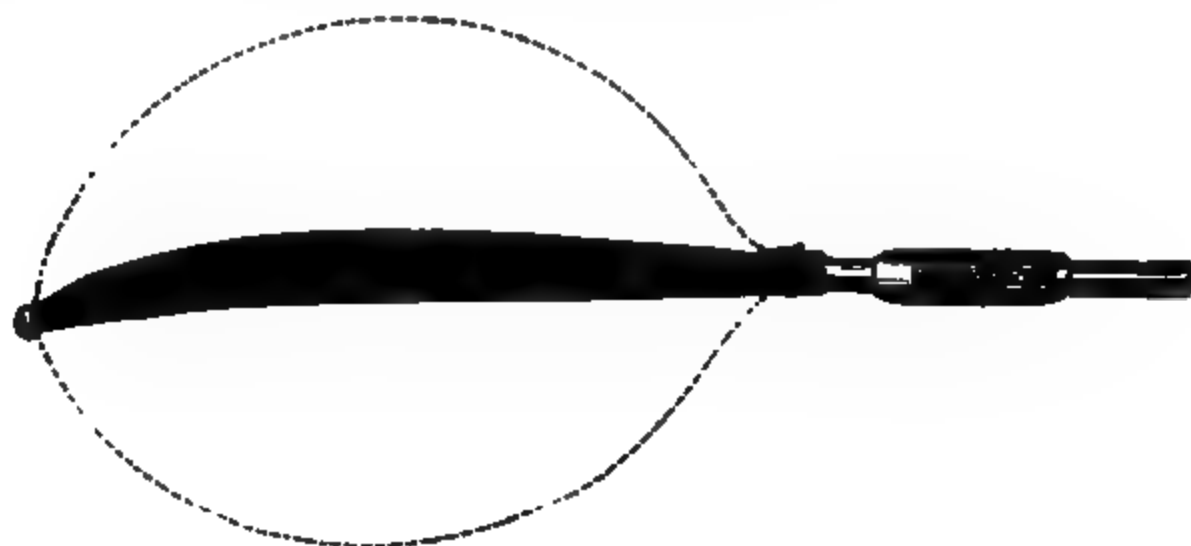


FIG. 56.

by counting the number of revolutions, each revolution giving a definite amount of expansion.

FIG. 564.—Allen's Surgical Pump attached to chair for convenience in bedside work.

3. GRADUATED HARD RUBBER OR METAL DILATORS.—Tait's (Fig. 57) and Hank's (Fig. 58) are the typical varieties of hard rubber dilators. Tait's dilators consist of graduated vulcanite cones which can be screwed into a suitable handle. The proximal end of the handle is perforated for elastic bands, which, passing in front and behind, are attached to a suitable belt round the patient's

waist. Thus the elasticity of the india rubber causes the cone gradually to pass up into the cervix, dilating it as it goes. Tait claims that with this dilator he can dilate rapidly and without danger of septic infection. Hank's dilators are of very simple con-

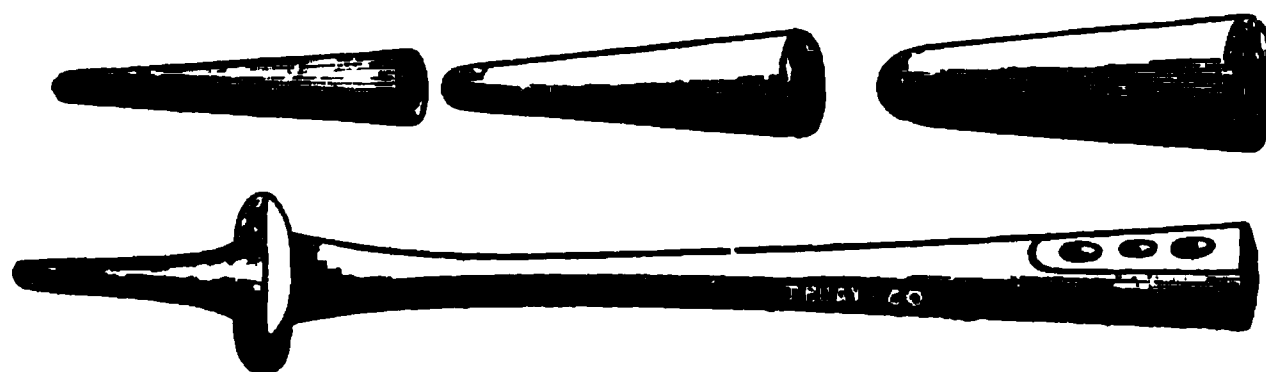


FIG. 57.—Tait's Uterine Dilator.



FIG. 58.—Hank's Uterine Dilator.

struction, but their action is tedious. The smallest size may be passed into the cervix by slow and gradually-increasing pressure. It may be succeeded by the second, and that by the third, and so on until the cavity will admit the finger.

Graduated steel sounds (Fig. 59) have for some time been

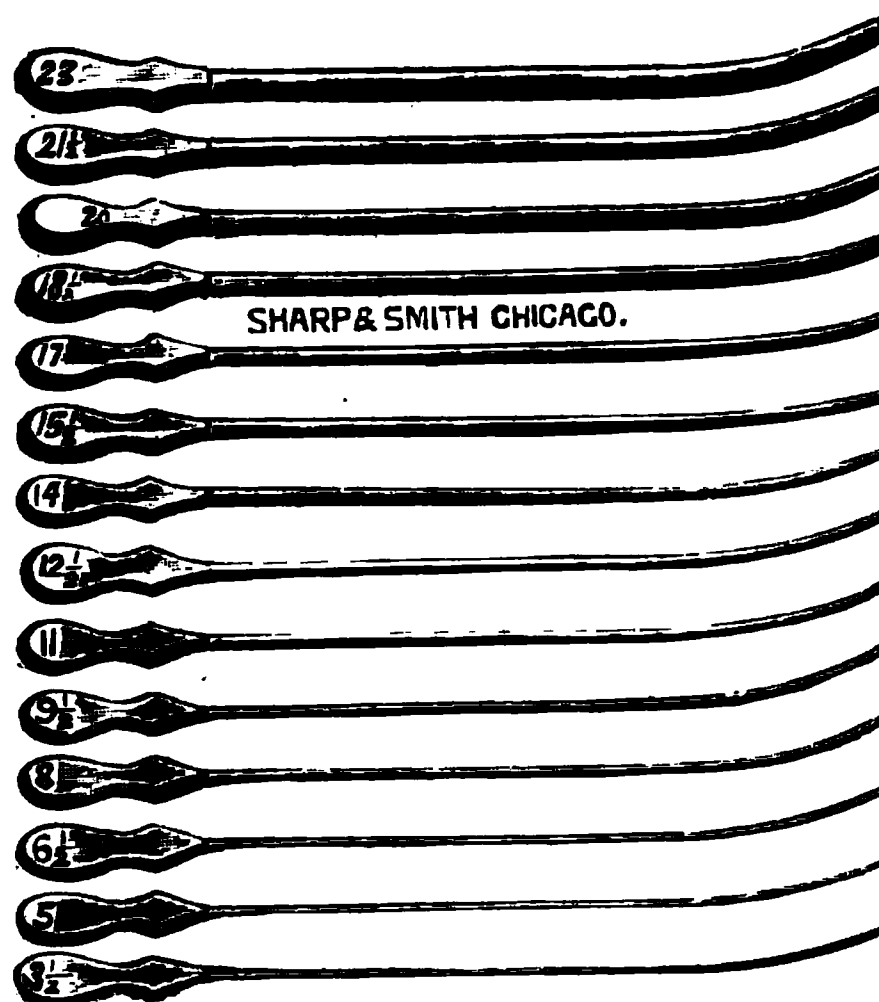


FIG. 59.—Graduated Steel Sounds.

recognized as an effective and safe means of dilatation. The attention of the profession has recently been called to their value by

Dr. E. H. Pratt. He gives the following directions for their use (1):—

“The treatment is to be given with the uterus in situ, and hence a good bi-valve speculum is indispensable.

“After its introduction, carefully insert a tenaculum a short way up the cervical canal, so as to steady it in its place, leaving no room for guess-work as to where the work is being done. An ordinary flexible uterine sound should now be inserted through the entire length of the uterine cavity in order to ascertain its direction and extent.

“The graded sounds should now be introduced one by one, beginning with the smallest that will pass with ease until some resistance is felt at the internal os, when the work must proceed with more care. Never use a uterine dilator of any sort that does not exercise an even pressure over the whole circumference of the canal, as otherwise individual spots will be more or less bruised, and in many instances an otherwise good piece of work will be spoiled by the local irritation needlessly set up in this manner.

“In this way persevere with still larger sounds; even though they may have to be crowded slightly to effect their introduction; no harm can result, since they are symmetrical and open the uterus after nature's own plan by an even dilatation. When a sound passes the internal os a little snugly, as through a rubber ring, and passes along the uterine cavity with more ease after it is past the point, no matter what the size of the sound may be, the work is still not sufficiently thorough. The os is still too irritable, and when the instruments are withdrawn it will grip tightly and confine the discharges that must follow the touching of the uterine mucous membrane, and as a result there will be liable to follow more or less congestion, and perhaps inflammation.

“Persevere with the sounds, therefore, until the uterus is converted into a straight tube, the last one meeting no more resistance at the internal os than throughout the entire length of the uterine cavity. Go no farther than this, for beyond this point a rupture of uterine tissue is liable to occur, and your work will be overdone, as unnecessary a misfortune as to leave it underdone. In either case failure will ensue, whereas by observing this rule success is a certainty. This method is a great satisfaction, for it takes the matter entirely outside of the pale of guesswork, and makes one certain of doing the right thing every time, by every uterus from the atrophied organ of sterility, to the overgrown one of subinvolution.”

(6) EXPANDING STEEL DILATORS.—These are the best instruments to employ for rapid dilation, if we except the Allen Surgi-

1) Medical Era, Dec. 1886, p. 171.

cal Pump, which as a dilator has already been described. They consist of two or more steel blades expanded by means of screw or lever handles. There is a variety of patterns, each of which has probably some peculiar advantage. Goodell's modification of Ellinger's dilator (Fig. 60) is as good as, and perhaps better than,

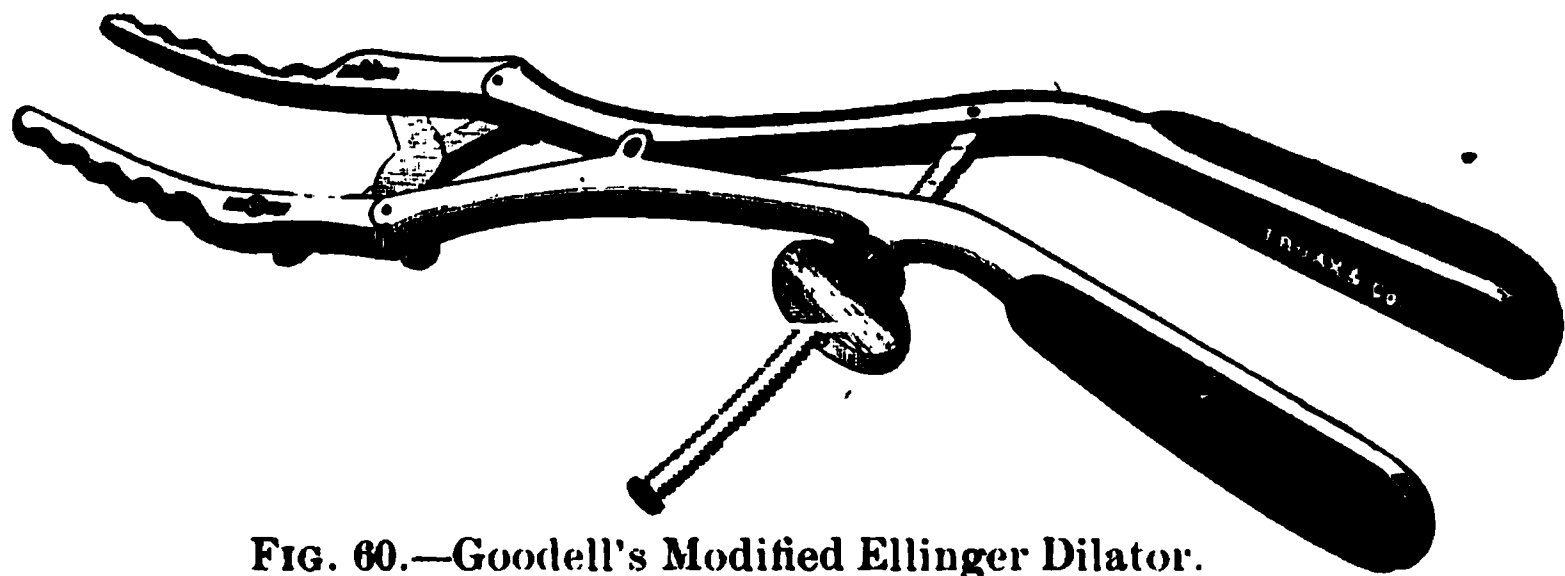


FIG. 60.—Goodell's Modified Ellinger Dilator.

most other kinds. This instrument is constructed of two sizes, a small size with slender, and a larger one with powerful, blades which do not feather, and with a screw attachment to separate them. This screw attachment is a real advantage, for thereby we are enabled to dilate slowly, allowing the muscular fibres of the cervix to yield to the applied force, without rupturing. The larger one dilates to an outside width of one and a half inches. Truax & Co. have modified Ellinger's dilator, claiming also to have combined the desirable improvements of Goodell. This instrument (Fig. 61) is constructed on an entirely different principle from other

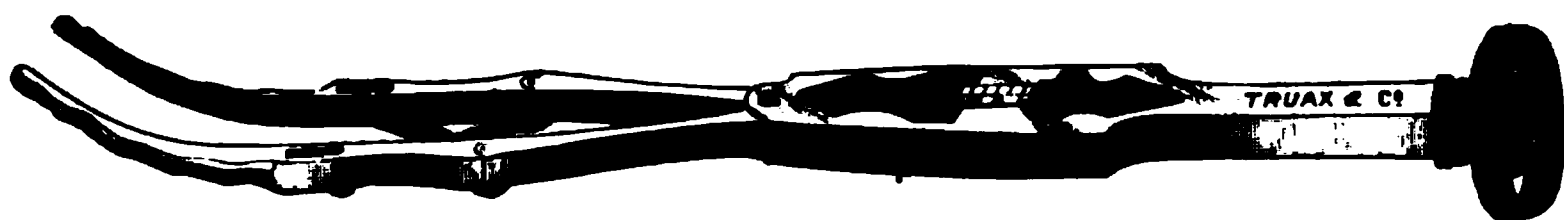


FIG. 61.—Truax's Modified Ellinger Dilator.

dilators. The blades dilate perfectly parallel, even under heavy pressure. The expansion is produced by a screw movement operated by a milled wheel in the base of the instrument. The handle is provided with a gauge marking the amount of dilation, which is an important consideration. Sims' dilator (Fig. 62) has three blades, and is a very powerful instrument. Palmer's dilator (Fig. 63) is an excellent instrument. It will dilate one inch, which is sufficient for most purposes. Moleworth's acme dilator deserves mention as an excellent instrument to produce slight dilatation, for curetting or in case of stenosis of the cervix, but as it expands only about half an inch it will not answer for general diagnosis where the finger has to be introduced. As far as it goes I consider it the best and safest instrument of the kind that has yet been de-

vised. It is provided with a channel through which intra-uterine injections can be made with comparative safety.

Dilation having been accomplished, by whatever means, the finger, well cleansed and dipped in carbolized oil, is introduced through the dilated os and made to explore the uterine cavity. If no further procedures are required the cavity is thoroughly irri-

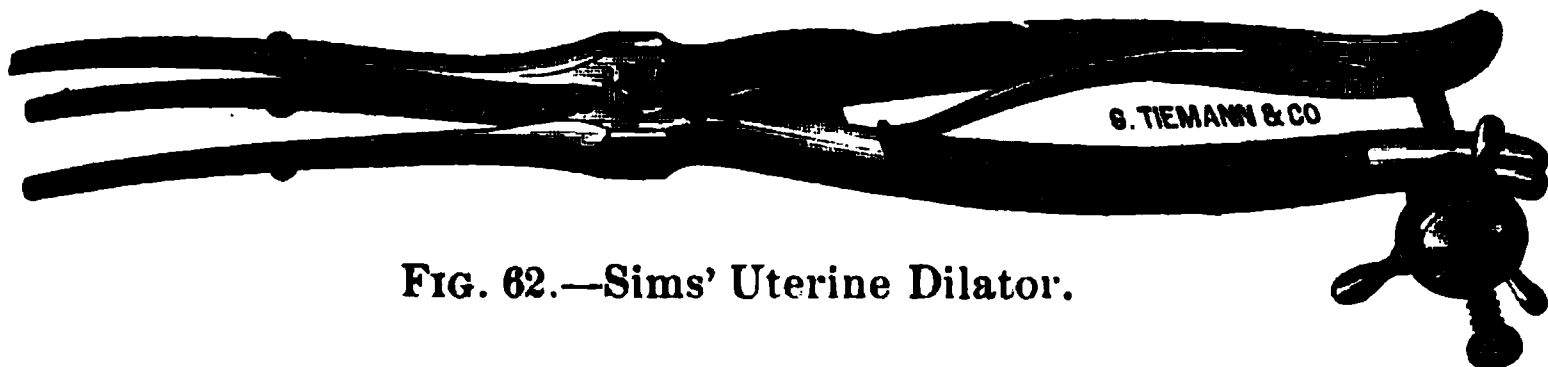


FIG. 62.—Sims' Uterine Dilator.

gated with hot water, and the patient allowed to remain quietly in the dorsal position until the uterus has resumed its normal condition.

(7) **THE CURETTE.**—Sometimes, after the uterus has been dilated, it becomes necessary to scrape off portions of the diseased tissue for microscopic investigation. For this purpose an instrument is employed known as the curette, which is also used thera-

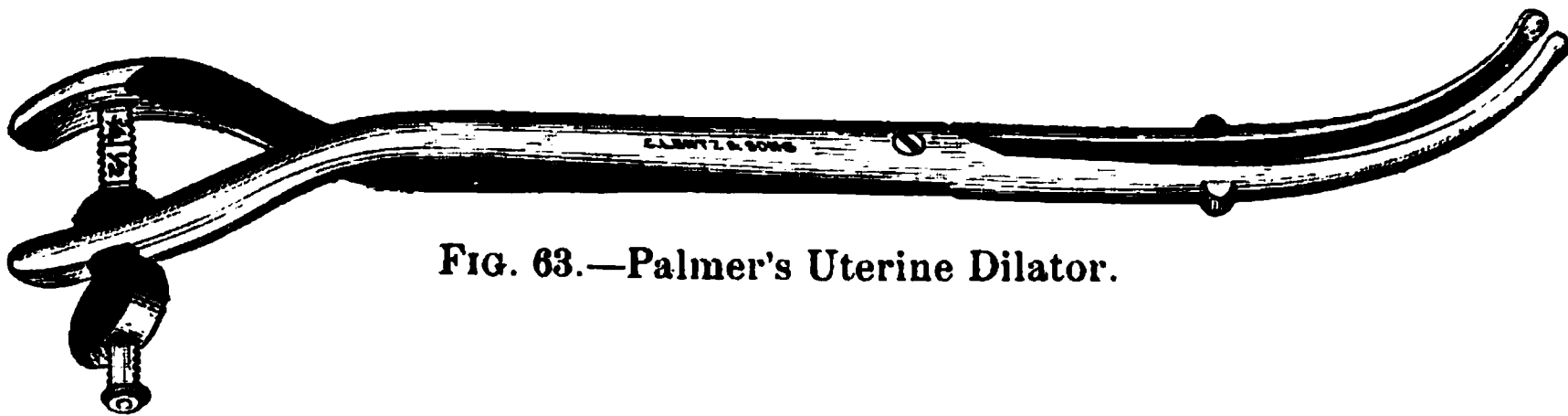


FIG. 63.—Palmer's Uterine Dilator.

apeutically for the removal of abnormal endometric granulations, sarcoma of the mucous membrane, carcinoma of the cervix, or the remains of an incomplete abortion.

The curette as originally devised by Recauner (Fig. 64) has a

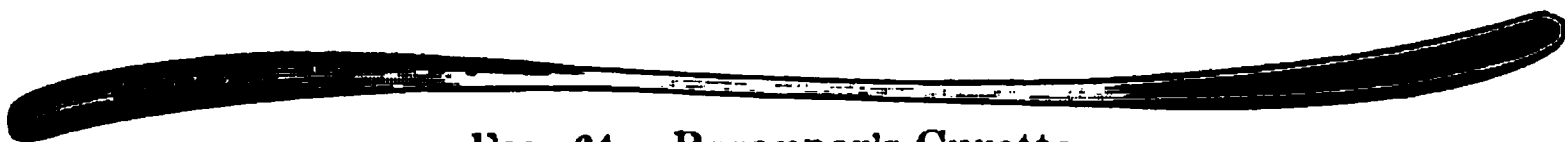


FIG. 64.—Recauner's Curette.

sharp edge, as has also Sims' later design (Fig. 65). Simon's curette (Fig. 66) is a cup-shaped scoop or apron of steel, of vari-

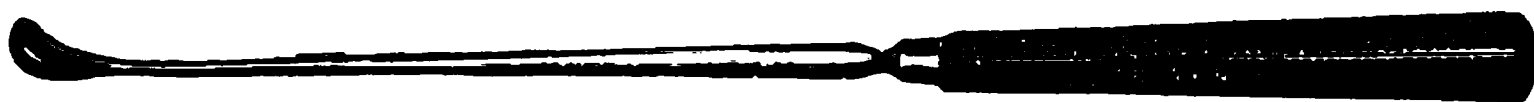


FIG. 65.—Sims' Curette.

ous sizes and shapes. Thomas devised a curette made of flexible wire with a dull edge (Fig. 67). This has proved a very popular, safe and effective instrument, and has almost entirely superseded

those made with a cutting edge. The dull wire curette is made in three sizes, has a flexible shaft which admits of being bent to any desired curve, and the scraping edge is smoothly flattened so as to prevent injuring the endometrium. Prof. A. R. Simpson has modified Thomas' curette by adding a knob two and one-half inches from the point, which informs the operator of the depth to

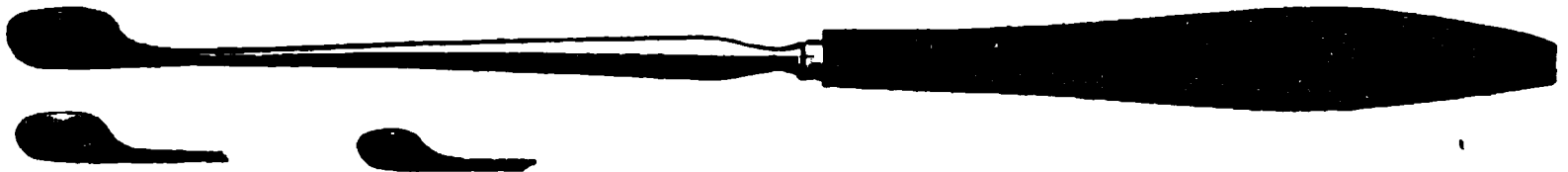


FIG. 66.—Simon's Curette.

which the instrument is inserted, thus enabling him to use it with greater safety. Byford has devised a curette (Fig. 68) with the end in view of being able to use considerable force without doing injury. It is something after the pattern of Sims' sharp curette,



FIG. 67.—Thomas' Dull Wire.

but perfectly dull, and quite strong, although flexible in the shank. Dr. Byford says that he considers this instrument so safe when properly used, that he "occasionally employs it in office diagnosis, but would be afraid to use any of the others with the same freedom."

To use the curette the patient is placed in the semi-prone

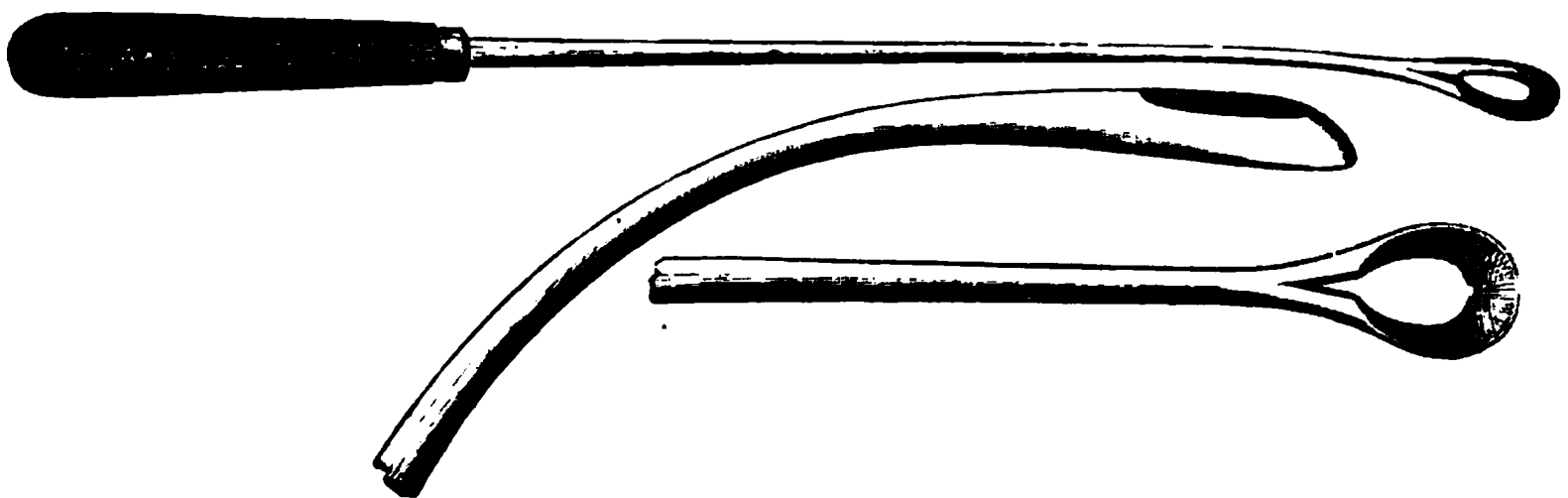


FIG. 68.—Byford's Curette.

position, and Sims' speculum introduced, the cervix having been previously dilated if necessary, and the location and position of the uterus thoroughly ascertained by a bi-manual examination and the use of the sound. The curette is then curved to correspond with the uterine curve and carefully carried into the uterus, the distance it is introduced depending upon whether only a small quantity of the tissue is desired for microscopic examination, or a larger quantity for examination in gross or for therapeutic pur-

poses. The method of using the curette in the latter case is more fully detailed in the chapter on chronic corporeal endometritis.

(8) THE ASPIRATOR.—This valuable instrument is often requisite for obtaining information as to the character and contents of abdominal and pelvic tumors. The aspirator (Fig. 69) consists

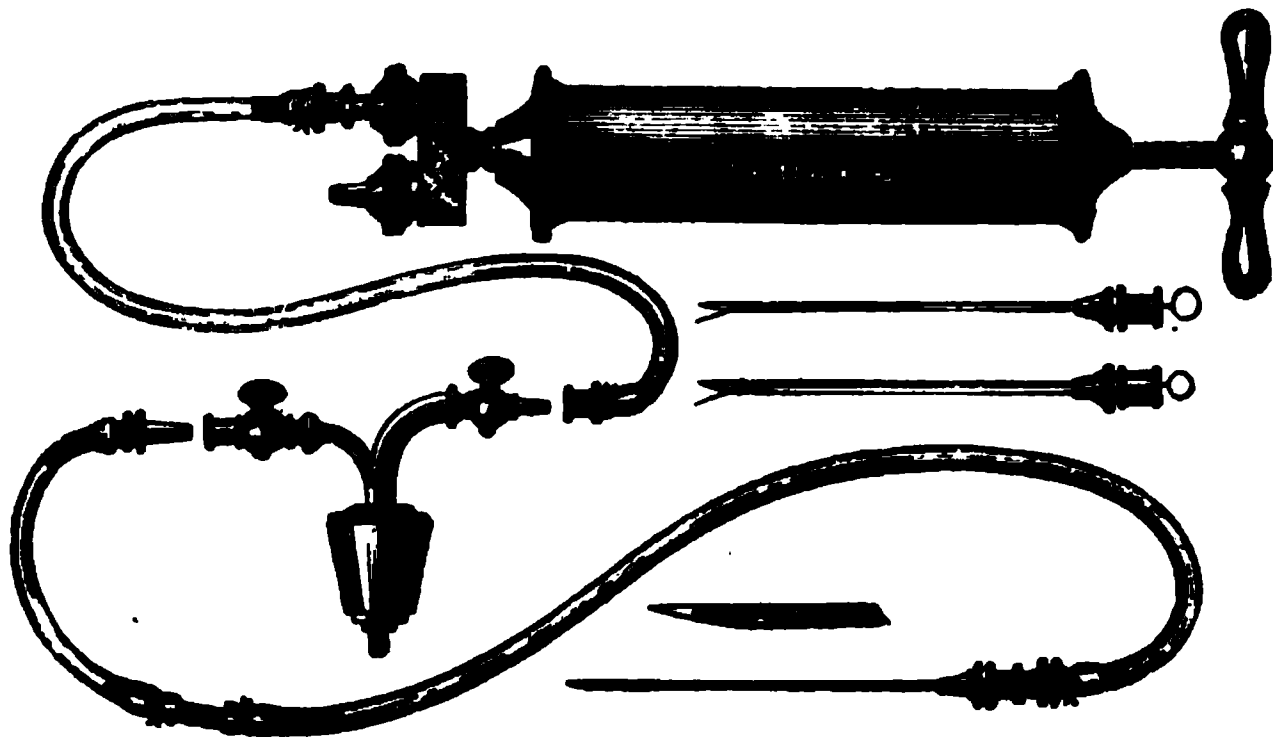


FIG. 69.—Aspirator.

of a receiver, an exhausting syringe, a set of tubular needles, and a connecting flexible tube supplied with the necessary stop-cocks. The air is exhausted from the receiver by means of the syringe, after which a needle duly connected is inserted into the tumor or abscess to be examined. Powerful suction is thus exerted upon the contents of the tumor, which, if not too thick and tenacious, will flow through the needle into the receiver. The needles are so delicate that puncture by them is comparatively safe, but should always be practiced with caution. In superficial cysts and abscesses an ordinary hypodermic syringe will answer every purpose. Large sized aspirators are not required for diagnosis. Peaslee's aspirator (Fig. 70) is a fair sample of several of the smaller instruments that have been devised chiefly for diagnostic purposes. Allen's surgical pump, already mentioned, is provided with aspirating needles, as shown in (Fig. 71), and constitutes an aspirator for either diagnostic or operative purposes that possesses many advantages not found in any other instrument. Other aspirators either necessitate the use of a vacuum bottle or require the turning of a stop-cock every time the cylinder is filled. The latter work slowly, have valves that are easily clogged, and are usually unsatisfactory. The former require the emptying of the bottle every time it is filled, and the creating of a new vacuum, and, as they will not work at all without a vacuum, they require an air-pump that will always be in perfect working order.

The Allen surgical pump possesses no piston (requiring fre-

quent packing), valves or stop-cocks, and as it is used without a vacuum bottle, the time usually employed both in producing the vacuum and in emptying the bottle is saved.



FIG. 70.—Peaslee's Aspirator.

There is no possibility of its failing to work, and the operator may rest assured that it will not fail him in an emergency. Should the needle become clogged with coagula, debris, or other matter, it may be instantly cleared by simply reversing the current (i. e.: turning the crank in the opposite direction), without necessitating



FIG. 71.—Aspirator Needle for Allen's Surgical Pump.

its withdrawal. It works equally as well as an injector, the only change necessary being the placing of the free end of the tube in the fluid to be injected and the reversing of the current. This will

be found of great value, for it will enable the operator to wash out a pus sack by injecting any desired solution.

In gynecological practice the aspirator is chiefly used to make a differential diagnosis between the contents of ovarian, parovarian and other cysts, and ascitic fluids, and the contents of a hematocele or a pelvic abscess. Often the gross appearance of the fluid withdrawn will determine the diagnosis, but sometimes it becomes necessary to submit a portion of it to a microscopic examination.

CHAPTER V.

DISEASES OF THE VULVA.

MALFORMATIONS. HERNIÆ.

MALFORMATIONS.—The following malformations of the vulva may occur:—

1. Absence of the vulva, or atresia totalis;
2. Hypospadias;
3. Epispadias;
4. Hermaphroditism.

In addition to these varieties there may also occur an absence or rudimentary formation of the clitoris and of the labia minora, whether on one or both sides, or there may be an enlargement of these tissues, as has already been noted in Chapter I.

Vulva infantilis is a condition in which there is an arrest in development after birth, the vulva retaining the dimensions of infancy.

1. **ABSENCE OF THE VULVA.**—This condition is sometimes

a.
b.
c.
d.



FIG. 72.—Hypospadias: *a*, open canal, formed by the anterior wall of the urethra, the posterior being absent in this part; *b*, posterior, closed part of the urethra; *c*, hymen; *d*, opening in the same. (From Winckel, after Mosengeil.)

known as *atresia totalis*, and is due to an arrest in development at the very earliest period of foetal development. All of the ex-

ternal genitals are absent, together with the anus and urethra, there being no external openings whatever, the rectum, bladder and genital canal usually communicating internally. This condition, combined with other malformations, has been found only in non-viable monstrosities, and is, therefore, of no practical interest.

2. **HYPOSPADIAS.**—This is a condition in which the posterior wall of the urethra is defective. The defect may extend so far up that control over the bladder is lost. Winckel says that a true hypospadia occurs "when the bladder opens without the vagina into the vestibule."

3. **EPISPADIAS.**—This condition consists in a failure of the

FIG. 78.—Epispadias: *a*, fissure in the bladder; *b*, labium majus; *c*, clitoris; *d*, labium minus; *e*, hymen; *f*, vaginal entrance. From Winckel, after Kleinwächter.)

urethra and anterior parts of the vulva to close, leaving a cleft, which is usually combined with a cleft of the anterior wall of the bladder. The clitoris and nymphæ may also be cleft. There is

no urethra, the mucous membrane of the open bladder presenting in the upper part of the vulva, just below the symphysis pubis.

If hypospadias or epispadias are present in but a slight degree, they may perhaps be relieved by a plastic operation, but, as a rule, this is not the case, and treatment must be confined to an attempt to close the opening in the bladder by means of a compress which presses the posterior against the anterior wall.

4. HERMAPHRODISM.—This term is applied to those cases in which a malformation of the female genitals exists in such a manner as to cause them to show a resemblance to the male organs, but it should be restricted to cases where the organs and characteristics of the two sexes become more or less blended in one individual.

“Here some parts of the vulva, especially the clitoris and labia majora, are developed to an unusual degree. The labia, uniting at a higher level, present a sort of raphe, and not infrequently contain the sexual glands, increasing the resemblance to the scrotum. On the other hand, other parts have been arrested in development, particularly the nymphæ, and hence the glans is partially exposed. But usually such cases are not examples of true hermaphrodisim, but of individuals of only one sex. There are, however, cases of true hermaphrodisim, in which testicles and ovaries may be microscopically demonstrated in the same individual; but, as a rule, the parts peculiar to one sex are tolerably well developed, while the others are rudimentary.

“The following combinations are possible:—

“(a). Bilateral hermaphrodisim, when a testicle is found on each side.

“(b). Unilateral hermaphrodisim, when an ovary or a testicle is found on one side and on the other both ovary and testicle. No case of this kind has been observed.

“(c). On the other hand, numerous cases of lateral hermaphrodisim have been observed, *i. e.*, a testicle on one side and an ovary on the other; this has been proved microscopically by careful observers.” (1).

Many interesting cases of hermaphrodisim are reported, but the limits of this book preclude their repetition.

In spurious hermaphrodisim, so-called, a variety of operative measures may be indicated and prove of benefit, according to the nature of the malformation and its effects, but in true hermaphrodisim no operation is admissible, the subject being of practical interest only from the standpoint of diagnosis, especially in early life, on account of the bringing up of the child. In such cases, where a positive diagnosis cannot be made, Lawson Tait's advice

1) Winckel, Diseases of Women. Parvin, p. 28.

is good, to bring up the child as a male, as it will then be more apt to receive a knowledge of the sexual relations that will enable it to decide from its own knowledge and instincts its proper place in the sexual sphere. Then, too, male hermaphroditism is much more common than female, and there would consequently be less danger of a mistake, which might, if made by adopting the opposite method, result in considerable injury to others, as well as to the individual himself.

HERNIA OF THE VULVA.

ANTERIOR LABIAL HERNIA.—EPISIOCELE.—In this variety of hernia of the vulva, portions of the abdominal contents pass along the round ligament and appear in one or both labia majora, in a manner exactly analogous to scrotal hernia in the male. The hernial sac may contain the omentum, intestine, ovary, Fallopian tube, and, according to some authors, even the pregnant uterus. The condition is often congenital, but not necessarily so.

The methods of diagnosis and treatment are practically the same as in all cases of inguinal hernia.

PUDENDAL HERNIA.—POSTERIOR LABIAL HERNIA.—HERNIA VAGINO-LABIALIS.—There is also a posterior labial hernia, where the hernia “passes down in front of the broad ligament into an opening or rent in the pelvic fascia and levator ani, and appears at the posterior extremity of one of the labia majora.” (1) This variety is extremely rare.

DIAGNOSIS.—This is important, owing to the danger of forgetting the probability of a hernia in this position, and acting without regard to it a disastrous mistake might be made, as in one case recorded, where the hernial sac was punctured under the supposition that it was a labial abscess. Thomas, in one case, came near making the same mistake. The same diagnostic rules apply as in other forms of hernia.

The treatment is the same as in other inguinal hernia, either by taxis or operation.

1) Winckel, Op. Cit., p. 84.

CHAPTER VI.

TUMORS OF THE VULVA.

CYSTS. NEUROMA. FIBROMA. LIPOMA. ELEPHANTIASIS. LUPUS. SARCOMA.
CARCINOMA. HEMATOMA.

Tumors of the vulva require but brief mention.

CYSTS.—Cysts of the vulvo-vaginal glands are not of unusual occurrence. They may form from dilatation of the ducts or of the glands themselves. They are true retention cysts arising from

FIG. 74.—Cyst of the duct of the vulvo-vaginal gland.

obstruction in the ducts. They never grow to any considerable size, and are smooth and round, sometimes, if involving the whole gland, becoming lobulated. Another form of cyst of the vulva is usually found between the orifice of the urethra and the clitoris. Other forms of cysts are also found in other parts of the vulva, being sometimes very deep seated.

The contents of the cysts of the vulva are usually a clear watery fluid, sometimes of a dark brownish fluid, frequently becoming purulent.

SYMPTOMS.—These are simply such as arise from the discomfort of the swelling, especially when walking, and occasionally from the difficulty caused in sexual intercourse, though they are usually not of sufficient size to make much trouble.

DIAGNOSIS.—The position of the swelling and its fluctuating

character usually renders the diagnosis easy. If not, tapping with a hypodermic needle will settle the question.

TREATMENT.—The cyst should be extirpated, its walls being carefully dissected from the surrounding tissues, or the contents of the cyst having been evacuated the walls may be destroyed by the cautery. Sometimes it is sufficient to paint the sac with iodine or apply carbolic acid.

NEUROMA.—These are small nodular or papillary tumors, having a red appearance, and are exquisitely painful, resembling a urethral caruncle. They are found on the labia minora and in the vestibule. They should be removed either with the knife or scissors.

FIBROMA.—These are found springing from the labia majora, being pediculated or embedded in the cellular tissues and muscular portions of the vulva. They are easily extirpated if embedded, and if pediculated may be removed by the scissors.

LIPOMA.—These are of more rare occurrence than fibroma, but may attain a large size, even hanging down to the knees. They often grow rapidly, and are somewhat sensitive, and often accompanied by more or less burning, so that they are liable to be confounded with sarcoma. They should be removed by the knife. Remedies have but little influence over lipoma, but the following may be consulted: *Baryta carb.*, *Calcarea carb.*, *Phosphorus*, *Phytolacca*.

ELEPHANTIASIS.—This form of vulvar hypertrophy is much more common in the tropical countries, but minor cases are sometimes met with in Europe and America.

VARIETIES.—Elephantiasis is divided into the hard and soft varieties, and these again into the smooth, warty and papillary forms. Klebs makes three divisions, according to the nature of the disease.

1. Lymphangectomatic,
2. Epidermoidal, and
3. Elephantiasis of the connective tissue.

PATHOLOGY.—There is an immense proliferation of the connective tissue, with a great amount of serous infiltration. The lymphatic ducts and spaces are dilated, and the skin is thickened. The latter may remain smooth or become rough from enlargement of the papillæ. Sometimes the lymphatics are not affected, the veins being dilated instead.

ETIOLOGY.—Elephantiasis occurs most frequently between the twentieth and thirtieth year, seldom after the fortieth, and while influenced more or less in its development by menstruation and pregnancy, yet genital disturbances cannot be said to act as causes either predisposing or exciting. Nevertheless onanism and

other mechanical irritations, excessive venery, and especially syphilis, are said to cause the disease. The frequency of the disease in tropical countries shows that climatic conditions exert some etiological influence. Winckel says that it seems probable

FIG. 75.—Elephantiasis of the Labia. (From Scanzoni.)

that "wholly specific causes are to be sought for, probably in a peculiar bacillus which may be similar to the bacillus lepræ."

SYMPTOMS.—These are mostly such as result from the weight and annoyance arising from a large tumor, which sometimes extends to the knees, and weighs twenty to thirty and sometimes fifty pounds. There is also more or less pain originating from

the fissures at the base of the swelling, and frequently a copious secretion is poured out. The general health is usually not much affected, though the continually unpleasant odors from the secretions, and from the superficial ulcerations which may take place, the dragging and pulling upon the urethra and difficult urination, may bring about disturbances of general nutrition, loss of sleep and emaciation.

The parts of the vulva generally attacked are the labia majora, clitoris and labia minor, the clitoris being most frequently affected. The course of the disease is variable, sometimes developing very rapidly, while at other times the growth increases so slowly as to require twenty years or more for its full development.

DIAGNOSIS.—The diagnosis is readily made on inspection, unless extensive ulcerations lead us to suspect carcinoma, in which case a microscopical examination of the tissue may be required. The presence of yellow elastic tissue will serve to distinguish it from fibroma.

TREATMENT.—This consists in the removal of the tumor either by the knife, scissors, Paquelin's cautery, or the galvano-caustic loup. If the tumor has a broad base, involving considerable of the vulva, it should be removed with the knife, and the wound united by sutures. Some cases have been cured by persistent use of a strong galvanic current.

The medicines required will depend entirely upon the subjective and objective symptoms present. Probably Silicea is most often indicated. Consult Arsenicum, Clematis Iodium, Hydrocotyle asiat., Sulphur, Thuja.

LUPUS.—Lupus rarely affects the vulva, but may do so in one or two forms—hypertrophic lupus and perforating lupus. The former is, more strictly speaking, a diffuse fibroma.

Lupus may occur upon the labia majora, the clitoris, or the labia minora. The etiology of the disease is very obscure, and, notwithstanding the most earnest investigations, has up to the present time remained unknown. Recently Koch and Doutrelepout claim to have demonstrated the presence of the bacillus tuberculosis in lupus, and the result of their investigations are generally accepted as correct.

Undoubtedly lupus of the vulva occupies a position on the boundary between benign and malignant growths.

The course and pathology of this disease when affecting the vulva does not differ from lupus of other parts, and therefore will not be discussed. Suffice it to say that clinically lupus presents "a sore which alternately ulcerates and heals, creeping round the vulva, and leaving a depressed white scar to mark each step in its continuous progress. The sores are preceded by flattish discolored

tubercles, which are often very slow in ulcerating. As a rule, there is not much pain. Progress, though slow, is only too sure. and large tracts are covered with cicatricial contracted tissues before the disease comes to an end, if it does so during the life of the patient."

TREATMENT.—It is usually considered that there is but one method of treatment, and that is to thoroughly remove the growth as quickly as possible by means of the knife, scissors, the galvano-cautery, or powerful escharotics. However, it should not be forgotten that numerous cases of cures of lupus with homeopathic remedies have been recorded, and this method of treatment is not to be entirely overlooked. The following remedies should be consulted :—Arsenicum, Arsenic iod., Baryta carb., Carbo an., Carbo veg., Causticum, Conium, Hydrocotyle asiat., Graphites, Kali bichr., Kreasotum, Lycopodium, Phosphorus, Silicea, Staphysagria, Sulphur, Thuja.

SARCOMA.—All varieties of sarcomatous tumors may be found upon the vulva, but fortunately their occurrence is extremely rare. Their growth is usually very slow, and they are liable, without the aid of the microscope, to be mistaken for fibroma or lipoma. According to Hilderbrandt they sometimes break down and form an ulcer, which rapidly extends until the whole vulva may be involved.

SYMPTOMS.—These are neither characteristic nor very annoying, except when friction gives rise to erosions and ulcerations. Often there is a marked tendency to hemorrhage, which greatly reduces the patient.

PROGNOSIS.—The prognosis is quite unfavorable, as when removed the tumor usually returns sooner or later, and the patient eventually succumbs.

TREATMENT.—The tumor should be thoroughly removed as soon as possible either by the knife or cautery.

CARCINOMA.—Carcinoma of the vulva is more frequent than sarcoma. By far the most frequent form is the epithelioma, but genuine fibroid or ulcerative carcinoma may occur. The disease first appears as small round nodules under the skin or mucous membrane. Their growth is at first slow and painless, but after ulceration sets in they develop more rapidly and give rise to great annoyance and sometimes considerable pain. The inguinal glands on the side first affected are early involved and eventually become the seat of cancerous glandular ulcers. The disease seldom extends into the vagina.

Usually death results within two years after ulceration begins, from exhaustion due to septic poisoning.

TREATMENT.—Doubtless the proper treatment is an early and

complete removal. After the tumor becomes immovable and the inguinal glands are involved an operation will only hasten a fatal termination. In such cases the patient's life may be materially prolonged by the persistent use of the indicated remedy. The remedies most often called for are *Arsenicum*, *Carbo an.*, *Kreasotum*, *Silicea*.

HEMATOMA. — This is a tumor formed by the effusion of blood into the tissues of the vulva from the rupture of a vessel beneath the surface. It is sometimes termed "thrombus" and "pudendal hematocele," either of which terms is evidently incorrect. Hematoma arises almost exclusively from trauma, and are most common during parturition or pregnancy, but may occur independent of these conditions, as a result of a blow or violent muscular effort. Care must be taken to differentiate hematoma from labial abscess or pudendal hernia.

TREATMENT. — Small hematoma are usually absorbed spontaneously. If this does not occur the patient should be kept quiet and receive *Hamamelis* both internally and externally, which will sometimes facilitate absorption. If the tumor is large and causes considerable tension, it may be incised, the blood clots turned out, and the cavity washed out frequently with a weak solution of carbolic acid, and dressed with carbolized lint. Sometimes hemorrhage follows this operation, and if so it will be necessary to apply persulphate of iron, and exert pressure by packing the cavity with lint and applying a tight bandage, or by introducing a large tampon into the vagina.

If suppuration set in, it should be encouraged by giving *Hepar sulph.* internally, and applying poultices to the part.

CHAPTER VII.

VARICOSE VEINS. ŒDEMA. ERUPTIVE DISEASES. PRURITUS VULVÆ.

VARICOSE VEINS.

This condition, otherwise known as phlebectasia of the vulva, is liable to occur at all ages, and while most often taking place during pregnancy, it may also be present in the non-gravid state. Sometimes the dividing walls between the veins break down, giving rise to a varicose tumor, which may vary from the size of a walnut to that of an orange, or even larger. Should the vessels burst beneath the skin or mucous membrane, the blood becomes effused into the cellular tissue, forming hematoma, which has been considered in the previous chapter.

TREATMENT.—Hamamelis is the remedy most often useful. Consult also Arsenicum, Pulsatilla and Rhus tox.

Pressure should be maintained either by a tightly-fitting T bandage, or a properly adjusted pad. The patient should not allow herself to become over-fatigued, and should assume the prone position several hours each day. If a vein should rupture externally, she should lie down at once and apply pressure to the bleeding point.

ŒDEMA.

Owing to the great amount of loose connective tissue which goes to form the vulva, œdema of the part is quite liable to occur. It is usually secondary to other affections, such as renal disease, and less often to disease of the heart or liver. It occurs most frequently as one of the results of the pregnant state, and is often found in connection with vulvitis and vaginitis, especially when of gonorrheal origin. Œdema may also accompany other chronic pelvic inflammations, fibroid and ovarian tumors, and cancer of the uterus. In extreme cases the œdema may be so great that it results in gangrene and septicæmia.

TREATMENT.—The remedies most often required are: Apis, Arsenicum, Cinchona, Ferrum, Kali Carbonicum, Lycopodium, Pulsatilla, Rhus tox and Sulphur.

ERUPTIVE DISEASES.

The vulva is liable to become the seat of any form of erup-

tive disease. Erysipelas, eczema, herpes, prurigo, erythema, acne, papilloma and condylomata are not of rare occurrence. These affections, when attacking the vulva, present similar characteristics and require like treatment as when located on other parts of the body.

PRURITUS VULVÆ.

DEFINITION.—An irritable condition of the nerves of the vulva producing excessive itching of the parts.

PATHOLOGY.—Pruritus vulvæ is not a disease, but only a symptom of pathological conditions existing elsewhere. Nevertheless, it is of so frequent occurrence, and so persistent and annoying in its character, while at the same time the cause which produces it may be so remote and obscure, that the symptom becomes, from a practical standpoint, the disease with which we have to contend. For this reason it deserves separate consideration.

It is claimed by some authors that pruritus is often a true neurosis, accompanied by no anatomical lesion, but this theory is not generally accepted. The itching which accompanies eczema and other cutaneous diseases is not included in the term pruritus vulvæ, yet, on account of the inflammation and excoriations of the parts caused by continual scratching, it is often difficult to determine whether or not a primary eruption has existed.

ETIOLOGY.—In endeavoring to ascertain the origin of pruritus in any given case the following list of possible causes should be carefully considered: (1) Irritating vaginal discharges—acid leucorrhea, or from carcinoma; (2) Incontinence of urine; (3) Diabetes mellitus—due to the irritation of the sugar in the urine; (4) Lithiasis, oxaluria, or other irritating conditions of the urine; (5) External parasites—pediculi and acari; (6) Ascarides, or other parasites of the vagina and rectum; (7) Fungoid organisms; (8) Eczema or other local eruptions; (9) Local inflammation—vulvitis, vaginitis, urethritis; (10) Vascular urethral carcinoma; (11) Short, bristly hairs growing on the mucous surface of the labia; (12) Aphthous ulcers; (13) Pregnancy; (14) Menstruation; (15) Congestion of the pelvic organs; (16) Gouty or rheumatic diathesis; (17) Hyperæsthesia of the nerves.

The observation that pruritus is often one of the earliest symptoms of uterine cancer I have verified in two cases. I have also verified in several cases the observation of Fritsch, that pruritus vulvæ is “frequently an affection of advancing age, of spontaneous occurrence.”

In addition to the above causes, pruritus may undoubtedly be brought about by indolent, luxurious or vicious habits; depreciated

general health; want of cleanliness; excessive sexual indulgence; over-exertion, particularly walking, in persons of sedentary habits; feather beds and too warm clothing.

SYMPTOMS.—The primary symptom is an itching on the surface of the vulva, which comes on in paroxysms, and may be confined to a portion of the vulva, or involve all the external genitals. The paroxysms may occur at irregular intervals without apparent exciting cause, or may be occasioned by becoming overheated by exercise, from being near a warm fire, from getting warm in bed, from a fit of passion, while in other cases the paroxysms may only return at or near the menstrual period. In one class of cases the patient will complain of a burning glow accompanied by an irresistible desire to scratch or rub the parts, while in another a disagreeable feeling of formication, as if a multitude of insects were crawling over the parts, is the sensation experienced.

At first the irritability may be but slight, but it gradually becomes aggravated by scratching, until the misery becomes almost unbearable. Often the skin and mucous membrane become thick from rubbing, or covered with ulcers and eczematous eruptions from the use of the finger nails. Frequently the habit of masturbation is acquired, and this together with the continual irritation and annoyance may induce nervous depression and other secondary ailments. The condition is often obstinate and lasts for months and years, but more often it can be cured by a judicious combination of both constitutional and local treatment.

TREATMENT.—While proper constitutional treatment is too often neglected in the treatment of pruritus, and in the majority of cases must constitute our main dependence, nevertheless it should be our first aim to discover and remove any local cause that may be present, when such a course is practicable. This may in some instances involve surgical measures, but more often it will require the use of topical applications, not only for the removal of local irritation, congestion, parasites, etc., but also frequently for the palliation of the intolerable itching when arising from more profound causes. As Dr. Ludlam well says (1): "It would be cruel to deny our patient the use of such palliatives as will mitigate her sufferings without in the least interfering with the cure of her complaint."

A long list of preparations for local use that have proved more or less effective might be given. In fact, etiological as well as individual influences vary to such an extent that what may relieve one case may be of no benefit in another, and an application that may relieve a case promptly at one time, may afterward cease to be of benefit.

1) Diseases of Women, 6th ed., p. 532.

If it be found that the trouble is due to parasites, these are best destroyed by the use of a five per cent. solution of carbolic acid, or of corrosive sublimate, half a grain to an ounce of water, or a lotion of equal parts of sulphuric acid and glycerine may be employed.

For ascarides, a quassia infusion or a decoction of garlic may be used, or a cerate of carbolic acid may be smeared over the parts. Injections into the vagina and rectum of salt-and-water will often in such cases afford prompt relief.

If eczema be present, the ordinary local applications for that disease may be employed. Almond oil medicated with a few drops of cantharis has been especially recommended. So, too, if vulvitis or vaginitis be present, the local treatment recommended elsewhere for those affections is equally serviceable. In such cases I have found very hot water applied on a sponge to be quite beneficial.

In apthous ulceration there is probably nothing better than a solution of the biborate of soda, or a lotion of hydrastis. If the trouble arises from irritating discharges the usual injections for acrid leucorrhea may be employed. In such cases I have had good results from the use of an injection of hot water and biborate of soda. An excellent plan is to lightly pack the vagina with dry salicylated, borated or carbolized absorbent cotton. The patient can herself daily, or oftener, place a wad of this cotton just within the vagina, and thus obtain very considerable relief. At the same time, in this, as well as in other varieties of pruritus, it is a good plan to protect the irritated surface by the application of vaseline, or by dusting on starch, bismuth or lycopodium. I have obtained excellent results from the use of a glycerole of bismuth and dydrastia.

Many other preparations have been recommended as a general application in pruritus: Chloroform and almond oil; cologne in warm water; starch and camphor; mercurial ointment; lime water; iodoform; tar and glycerine; infusion of tobacco; plantago cerate; nitrate of silver; acetate of lead and opium; conium; caladium seguinum, etc. I have obtained excellent results from the latter remedy, used both internally and externally.

If the pruritus is due to the presence of stunted or broken hairs around the margin of the vulva, each of these must be removed with a pair of forceps, by the aid of a magnifying glass. If diabetes be the cause, the catheter should be used regularly and as frequently as necessary, and the parts thoroughly washed after each micturition.

Under all circumstances cleanliness is of the utmost importance. The parts should be frequently bathed, and sitz baths, or vaginal injections of warm water and castile soap, be employed

daily. Moderate exercise in the open air is desirable, but the patient should avoid fatigue or overheating of the body. The diet should be plain and unstimulating. Sexual intercourse should be permitted only in moderation.

In no case should the use of the carefully selected remedy be neglected. While there may be cases in which the cause is entirely local, and a cure may be accomplished by the use of local and mechanical measures, yet it is oftener true that back of all lies a constitutional disease or dyscrasia which these measures only palliate, and which can never be cured without the use of internal medicine.

THERAPEUTICS.

AMBRA.—Especially useful when of purely nervous origin, or during pregnancy. Violent itching of the vulva; soreness and swelling of the labia; menses too early and too profuse; discharge of blood between the periods from every slight accident, as after hard stool or walking; urine deposits a brown sediment; patient, nervous and hysterical.

ARSENICUM.—Especially when resulting from uterine cancer, or from irritating discharges; burning and itching; vesicular or dry scaly eruptions, gangrenous tendency; worse at night, better from warmth and warm applications.

CALADIUM.—An efficient remedy both internally and locally. No special indications other than it produces pruritus of the vulva and vagina, and has repeatedly cured the condition; also when associated with papular eruptions on the genitals.

CANTHARIS.—Swelling and irritation of the vulva. Violent itching in the vagina. Pruritus with strong sexual desire. Dysuria, frequent micturition with burning and cutting pain.

CARBOLIC ACID.—Useful both internally and externally when resulting from putrid, irritating discharges, and when there is a vesicular eruption which itches excessively, better after rubbing, but leaving a burning pain.

CARBO VEG.—Red, sore places on the vulva; apthæ (Helonias); itching, sore and raw during leucorrhea. Leucorrhea, thin in morning, on rising, not through the day; milky, excoriating. Menses too early and too profuse.

COLLINSONIA.—Especially during pregnancy or when dependent on or associated with hemorrhoids, constipation or other rectal troubles; violent itching, parts badly swollen, dark red and protruding.

CONIUM.—Especially in scrofulous or cancerous subjects; severe itching deep in the vagina; thick, white, acrid leucorrhea causing itching and burning.

GRAPHITES.—Itching of the pudenda before menstruation. Menses too late, too scanty and too pale. Vesicles or excoriations in the vagina, on the perineum, vulva, and between the thighs.

HELONIAS.—Especially in anæmic women, with uterine atony, prolapsus and leucorrhea; apthous conditions; intense pruritus, parts hot, red and swollen, exfoliations of epidermis.

KALI BROMATUM.—Pruritus from ovarian or uterine irritation; diabetes; urine loaded with sugar; incontinence of urine; nervous unrest.

KREASOTUM.—Violent itching of the labia, also of the vagina; external genitals swollen; hot, hard and sore; soreness and smarting between the labia and vulva. Itching during and after menstruation. Leucorrhea of a yellow color, staining linen yellow, with great weakness.

MERCURIUS.—Leucorrhea, always worse at night, greenish discharge, smarting, corroding, itching, burning after scratching. Inflammation of vagina, and especially the external genitals, with rawness, smarting, and excoriating spots. Itching of the genitals, worse from the contact of urine.

NITRIC ACID.—Especially in syphilitic subjects, and those who have taken much Mercury; itching of the vulva; ulcers in the vagina, burning and itching; offensive leucorrhea.

PETROLEUM.—Itching, soreness and moisture of external genitals; menses too early, the discharge causing excoriation and itching; eczematous eruptions.

PLATINA.—In hysterical subjects, especially during pregnancy, voluptuous tingling extending from genitals into abdomen; nymphomania; anxiety and palpitation of the heart; menses profuse, flow dark and clotted.

RHUS TOX.—Resulting from acrid menstrual flow or erysipelatous or eczematous inflammation of the vulva; much burning and itching.

SEPIA.—Long standing chronic cases associated with uterine displacement; or during pregnancy, child-bed, or while nursing; great dryness of the vulva and vagina, which are painful to the touch; soreness and redness of the labia, in the perineum and between the thighs; excoriating leucorrhea, yellow like milk, or pus, or of bad smelling fluids.

SILICEA.—In scrofulous subjects; imperfect nutrition; itching burning and soreness in the vulva; acrid, corrosive leucorrhea eczematous, pustular or herpetic eruptions, with a tendency to suppuration.

SULPHUR.—Chronic cases in “psoric” patients; profuse yellow, corrosive leucorrhea; itching of the genitals, with papular eruptions around them; burning in the vagina, is scarcely able to keep

still; voluptuous itching and tingling, with burning and soreness after scratching; worse from the warmth of the bed.

Consult also *Calcarea carb.*, *Croton tig.*, *Hydrocotyle*, *Asiatica*, *Lilium tig.*, *Lycopodium*, *Mezerium*, *Natrum mur.*, *Nux vom.*, *Pulsatilla*, *Staphysagria*.

CHAPTER VIII.

VULVITIS.

VULVITIS. HYPERÆSTHESIA OF THE VULVA. URETHRAL CARUNCLE.
PROLAPSUS OF THE URETHRA. COCCYODYNIA.

VULVITIS.

DEFINITION.—Inflammation of the vulva.

VARIETIES.—There is much difference of opinion as to the proper classification of vulvitis. I shall, however, only mention the various forms of simple vulvitis, not including the exanthematous and the infectious varieties—eczema, herpes, prurigo erysipelas, diphtheria and syphilis—for these affections, when involving the vulva, do not differ materially from like conditions existing elsewhere.

Four varieties of simple vulvitis may be distinguished:—(1) catarrhal; (2) gonorrheal; (3) follicular; (4) gangrenous. The first two varieties are frequently included under one head as purulent vulvitis.

1.—CATARRHAL VULVITIS.

PATHOLOGY.—Catarrhal vulvitis may only involve the mucous membrane, which presents a red, inflamed appearance, or it may involve the corium and subcutaneous tissue, constituting what is sometimes separately described as phlegmon of the vulva. In such cases the skin is greatly swollen and presents a red or bluish-red color, is more or less œdematous, and not infrequently the glands of Bartholini inflame and suppurate, forming an abscess which is usually about the size of a pigeon's egg.

Acute catarrhal vulvitis is of rare occurrence in the adult, but is quite common in children. It rarely involves the vagina, being confined to the vulva alone.

Sub-acute and chronic catarrhal vulvitis is more common in the adult, as might be inferred from the character of the causes which produce it.

ETIOLOGY.—Acute catarrhal vulvitis, as it occurs in young children, is most often the result of a want of cleanliness, the external genitals being continually irritated by the presence of urine and feces upon the parts. It may occur during dentition, especially in scrofulous children. In adults it may occur from injuries and surgical operations, awkward and immoderate coitus, and from irritating discharges.

The sub-acute and chronic forms usually arise from the influence of irritating vaginal discharges, either menstrual or leucorrheal; or, from urinary fistula, carcinoma, diabetes, or an extension of vaginitis. According to Winckel "the vulvitis of diabetes presents a peculiar copper-red color." Onanism and excessive venery must not be overlooked as not infrequent causes.

SYMPTOMS.—The first symptoms are heat, dryness, burning, pain and moderate swelling of the parts, soon followed by a more or less profuse flow of muco-pus, which affords some relief. There is also usually considerable tumefaction, hypersensitiveness and pruritus, and sometimes painful menstruation. If the deeper tissues are involved and suppuration sets in, the primary symptoms are soon followed by shooting pains and throbbing in the affected parts, and the presence of an abscess is soon apparent.

An acute attack usually lasts from one to three weeks, often longer in children. The sub-acute and chronic forms may run a lengthy and tedious course unless properly treated.

TREATMENT.—In the acute form, rest in bed, hot fomentations, and the use of the indicated remedy—usually aconite or belladonna—are the chief indications for treatment. Frequently the hot fomentations may give way, with benefit, to the use of fluid *Calendula* or fluid *Hydrastis*, one-half ounce to a pint of tepid water, applied by saturating a piece of soft linen cloth. After the secretion is established, the parts must be kept carefully cleansed by frequent douches of tepid water. If suppuration threatens and Belladonna or other indicated remedy fails to produce resolution, efforts should be made to hasten the suppurating process. Hot poultices should be applied and *Hepar sulph.* given in a low trituration. The abscess should be evacuated early on account of the danger of the burrowing of pus in the lax surrounding tissues. It is said that sometimes the pus will even force its way upward and through the abdominal ring.

In the sub-acute and chronic varieties the chief local treatment consists in removing all irritating discharges. For this purpose an injection of a two per cent. solution of carbolic acid may be used, together with frequent hot vaginal douches, and a wad of carbolized or borated absorbent cotton may be placed inside the vagina to absorb the discharges. The external parts should occasionally be washed with a *Hydrastis* or *Calendula* lotion, and then kept dressed with vaseline applied on a soft linen cloth.

2.—GONORRHEAL VULVITIS.

Acute vulvitis in the adult is almost invariably the result of gonorrheal infection.

SYMPTOMS AND DIAGNOSIS.—The symptoms in the main do

not differ from those of catarrhal vulvitis, so that it is often impossible to positively differentiate between the two. This sometimes becomes a very important matter, as upon the diagnosis may depend the reputation of a virtuous woman and the happiness of a family. In the gonorrheal variety the acuteness and suddenness of the attack, the apparent absence of other causes, the presence of a violent urethritis, which is never present in the catarrhal form, the presence of pus in the urethra and the thick yellow or greenish purulent discharge from the inflamed surfaces will generally establish the nature of the disease. Extension to the vagina more often takes place, and labial abscesses are much more common, than in the catarrhal variety.

The fact that transmission to the male has taken place is not a positive sign of gonorrheal origin, as a severe balanitis in the male may result from connection with women suffering from non-specific irritating vaginal discharges. In some cases of gonorrheal vulvitis condylomata form around the vaginal orifice, which never occurs in the catarrhal variety. However, as Dr. Helmuth well says, "in many cases there is an impossibility to pronounce positively as to the presence of gonorrhea in the female."

TREATMENT.—The treatment of gonorrheal vulvitis does not differ materially from that of the catarrhal variety. Frequent hot vaginal douches, injections of a two per cent. solution of carbolic acid, or what is still better in this variety, of bi-chloride of mercury, one grain to a pint of water, or the use of Calendula and Hydrastis, as before mentioned, are the most effective local applications.

The following remedies are most often required, according to the symptoms:—Aconite, Belladonna, Cannabis sativa, Cantharis, Mercurius sol., Nitric acid, Phytolacca, Sulphur, and Thuja.

3.—FOLLICULAR VULVITIS.

PATHOLOGY.—In this variety the sebaceous sweat and hair follicles of the vulva are especially affected. They become enlarged to the size of a pin-head, forming slight elevations or little red prominences over the vulva, which secrete pus, the condition thus presenting the appearance of granulations. Sometimes the secretion is less purulent, and more of a white, cheesy or pasty character, which in bad cases may form a thick coating over the entire inflamed surface. In some instances the mouths of the glands are stopped, the secretion being retained and a suppuration following.

ETIOLOGY.—Uncleanliness is the chief cause of follicular vulvitis. It may also be caused by pregnancy, vaginitis, exanthemata, excessive venery, but it is rarely, if ever, of specific origin.

SYMPTOMS.—There is much burning, itching, heat and sore-

ness in the vulva, which sometimes becomes excessively sensitive, even to the extent of producing vaginismus. Urethritis is frequently present.

This form of inflammation is more severe than the catarrhal, and more inclined to run a chronic course, sometimes proving very intractable. If occurring as a result of pregnancy it will usually

FIG. 76.—Follicular Vulvitis.

disappear after parturition, but in very severe cases it is said to sometimes produce abortion.

TREATMENT.—The local treatment is the same as in the catarrhal variety.

4.—GANGRENOUS VULVITIS.

PATHOLOGY.—Fortunately gangrenous inflammation of the vulva is of rare occurrence. In children the condition is said to be identical with noma or cancrum oris, and probably in no case does the disease essentially differ from gangrene of other parts. According to Winckel (1) "a slight infiltration first appears in one of the labia majora; this soon has a grayish-green color; vesicles are formed, the color then changes to a dark-brown, terminating in gangrene and loss of substance."

ETIOLOGY.—Gangrene of the vulva when occurring in the adult is usually a result of parturition, when there has been exten-

1) Diseases of Women, Parvin, p. 66.

sive œdema, or of some mechanical violence, or it may follow the rupture of a large hematoma. In some epidemics of puerperal fever it is present in nearly every case. It may also occur in the course of acute exanthematous diseases, and in continued fevers, and may exist as an epidemic independent of any other diseases.

PROGNOSIS.—The prognosis is unfavorable, most cases terminating fatally, death resulting from septicæmia, or pulmonary embolism. If recovery takes place, cicatrization occurs in from three to six weeks.

TREATMENT.—In order to guard against septicæmia all sloughing masses should be cut away, being careful to avoid living tissue, which should be thoroughly cauterized. As local applications, a solution of salicylic acid, thymol or lime water are recommended, or the parts may be dusted with iodoform, boric acid or chlorate of potash. I consider a charcoal poultice the best dressing that can be applied. Tincture of Baptisia also makes an excellent application.

The patient should receive a nourishing diet, and if necessary be sustained by wine, brandy, or other stimulants. Arsenicum is the remedy most often required. I think it should be used in a low trituration. Also consult Baptisia, Carbo. veg., Crotalus, Kreasotum, Lachesis, Secale, Muriatic Acid, Nitric Acid, and Rhus tox.

For the therapeutics of vulvitis in general the reader is referred to the chapter on Leucorrhœa.

HYPERÆSTHESIA OF THE VULVA.

DEFINITION.—A condition of rare occurrence and first described by Thomas (1) as “an excessive sensibility of the nerves supplying the mucous membrane of some portion of the vulva; sometimes the area of tenderness is confined to the vestibule, at other times to one labium minus, at others to the meatus urinarius; and again a number of these parts may be simultaneously affected. It is a condition of the vulva closely resembling that hyperæsthetic state of the remains of the hymen which constitutes one form of vaginismus.”

PATHOLOGY.—There is neither a true neuralgic nor an inflammatory state, but simply an abnormal sensitiveness of the nerves supplying the vulva.

ETIOLOGY.—The condition may result from vulvitis or irritable urethral tumors, but more often it arises at or near the menopause, especially in hysterical or hypochondriacal patients. In some cases no cause can be discovered.

SYMPTOMS.—The chief symptom is pain on sexual intercourse.

1) Diseases of Women, 1876, p. 114.

Any friction, or even cold air, produces great discomfort, and sometimes intense pain. The mind becomes depressed, in some instances bordering upon monomania.

DIAGNOSIS.—It is necessary to differentiate from irritable caruncle of the meatus; and from vaginismus, which latter, it must be understood, is a distinctly different affection. Inspection and touch will readily distinguish between these conditions.

TREATMENT.—This must be entirely symptomatic, the remedy being probably more often indicated by the general than the local symptoms. Consult Belladonna, Cimicifuga, Cocculus, Coffea, Gelsemium, Hyoscyamus, Ignatia, Kali brom., Nux Vomica, Platinum, Thuja, Zincum.

URETHRAL CARUNCLE.

DEFINITION.—A vascular tumor or irritable vascular excrescence of the urethra.

PATHOLOGY.—These tumors consist, according to Hart and

FIG. 77.—Caruncle at Urethral Orifice (*a*) and, in addition, Neuromata in surrounding Mucous Membrane (Sir J. Y. Simpson).

Barbour, "of dilated capillaries in connective tissue, the whole being covered with squamous epithelium." According to Dr. Reid, of Edinburgh, they are richly supplied with nervous filaments.

They vary in size from that of a pin-head to that of a raspberry, or even larger; they are of a deep cherry-red color, soft and friable, usually of an irregular shape, and are exquisitely tender and vascular.

SYMPTOMS.—These are — pain on micturition; severe pain, and sometimes hemorrhage, from coition; and more or less disturbance and pain from pressure or friction, from exercise, or from the clothing touching the parts. The patient also becomes nervous, hysterical and melancholy.

DIAGNOSIS.—A urethral caruncle is liable to be confounded with urethral prolapsus, or with syphilitic warty growths, but as neither of these present the characteristic sensitiveness, pain and vascularity of urethral caruncle, there should be no mistake.

TREATMENT.—The patient having been put under an anæsthetic, is placed upon a table in the lithotomy position. The tumor is then grasped near its base by forceps and cut off by scissors. The base should then be thoroughly cauterized by Paquelin's thermo-cautery at a dull heat, or, in the absence of this instrument, by a hot wire. If hemorrhage continues after the use of the cautery it may become necessary to "plug the vagina, bringing the half of the last strips of lint over the urethral orifice and fixing with a perineal band." Some authorities, instead of using the cautery, touch the base of the caruncle with fuming nitric acid, or pure carbolic acid.

PROLAPSUS OF THE URETHRA.

DEFINITION.—An eversion or prolapsus of the mucous membrane lining the urethra. According to Thomas there is also a "proliferation of the underlying connective tissue."

SYMPTOMS.—This condition often exists for some time without giving rise to any symptoms, but exposure and irritation of the prolapsed membrane after awhile leads to more or less urethral and bladder disturbances, pruritus and leucorrhea.

DIAGNOSIS.—There is more danger of confounding this condition with urethral caruncle or polypus, but the fact that the swelling completely and uniformly encircles the urethra, that it is not vascular, and lacks the excessive sensitiveness and pain of a caruncle, are sufficient to make the diagnosis easy, though a prolapsed urethra sometimes becomes very sensitive, and for this reason, as Thomas says, this symptom is not to be relied upon as a differential sign.

TREATMENT. — Thomas recommends pulling down the prolapsed membrane with both forceps, and cutting it off with curved scissors, the resulting hemorrhage to be controlled by applying

pledgets of lint or cotton saturated with a solution of per-sulphate of iron.

Sequin avoided hemorrhage by introducing a female catheter into the bladder, and ligating the prolapsed membrane to it, so that strangulation ensued, leaving the catheter in until it was released by sloughing off of the ligated part. The same plan could be adopted, using the galvano-cautery wire instead of the ligature.

COC CYODYNIA.

SYNONYMS.—Coccygodynia, Coccyalgia.

DEFINITION.—A hyperæsthesia and neuralgia of the coccyx and of the muscles attached to it.

PATHOLOGY.—This condition is in some cases associated with disease of the bone itself, such as caries or fracture, and hence the real nature of the disease has sometimes been overlooked. Injury and disease of the bone are by far of more frequent occurrence than is the disease now under consideration. It is therefore evident that something more than a diseased bone is necessary to produce coccydynia, which is now pretty well established to be a neurosis, and dependent upon a hyperæsthetic and neuralgic state of the nerves supplying the region of the coccyx. This latter condition may arise from a variety of causes, either being reflex in its character, or resulting from an injury or disease of the coccyx, or an injury or strain of its muscular attachments.

ETIOLOGY.—From what has been said it is not surprising that parturition is the chief cause of coccydynia. It may also occur in women who have never borne children, and sometimes, though rarely, has been found in men and young children. Outside of childbearing, it may be caused by mechanical violence, such as a kick, a blow, or a fall upon the coccyx, or from horseback riding. It is also frequently associated with uterine, ovarian or rectal disease. In persons of a rheumatic diathesis it arises from exposure to cold.

SYMPTOMS.—The chief symptom is pain on moving the os coccyx, in sitting down or rising from a seat, or in defecation, coughing, sneezing, or walking. Frequently the patient will suffer so much from any movement that she is obliged to keep in a recumbent posture.

DIAGNOSIS.—The finger should be passed into the vagina or rectum and pressed backward upon the cervix, or, with the thumb outside, the bone can be seized and caused to move, which will give the patient great pain. This, together with the history of the case, is sufficient to establish a diagnosis.

PROGNOSIS.—There is but very little tendency to spontaneous recovery, the disease lasting for years, causing the patient continual annoyance and distress, unless relieved by proper treatment.

TREATMENT. — Remedies should be persistently employed according to indications, but at the same time the cause of the condition must be ascertained and removed if such a thing is possible. In cases resulting from uterine displacement, or ovarian or uterine disease, the primary disease must be removed before the coccydynia can be cured. So, also must anal fissures, hemorrhoids and ulcers in the rectum be watched for, and if found, removed by appropriate treatment.

In selecting a remedy all existing circumstances must be taken into consideration, and all the symptoms of the case covered if it is possible to do so.

The following remedies are especially to be considered: *Belladonna*, *Cinchona*, *Cimicifuga*, *Colocynth*, *Ignatia*, *Kali brom.*, *Lachesis*, *Lilium tig.*, *Mercurius*, *Nux Vomica*, *Platina*, *Plumbum*, *Pulsatilla*, *Rhus tox.*, *Sulphur* and *Zinc*.

If the condition persists in spite of all these measures, it may be necessary as a last resort to adopt surgical measures. There are two operations which have been successfully practiced. The first consists in passing a tenotomy knife beneath the skin on the posterior aspect of the coccyx, and freeing its lateral and apical muscular attachments. The second is amputation of the coccyx. This operation consists in first making a vertical mesial incision over the posterior aspect of the coccyx, and dissecting away the integument and muscular attachments, after which the bone is lifted up and turned backward so as to expose the articulation, which is then separated by the use of the bone-forceps or a strong knife.

The wound is then closed by replacing the flaps and uniting them by sutures.

This operation is very effective, and is neither dangerous nor difficult to perform.

CHAPTER IX.

DISEASES OF THE VAGINA.

MALFORMATIONS. ATRESIA.

MALFORMATIONS.—Malformations of the vagina, like those of the uterus, occur from imperfect development, destruction, or failure of coalescence of the ducts of Müller, the lower extremities of which should unite to form the vagina. A full description of these malformations will not be attempted in this work, though each one will receive brief mention. It is a safe rule to follow that no efforts should be made to correct these conditions surgically. Especially is this true in those cases in which it is desirable to make an artificial vagina, unless it is demanded by the presence of a hematometra. Malformations of the vagina are:—

- (1). Absence of the vagina.
- (2). Rudimentary vagina.
- (3). Unilateral vagina.
- (4). Double vagina.
- (5). Congenital smallness of the vagina.
- (6). Congenital cloaca of the vagina.

1. **ABSENCE OF THE VAGINA.**—This condition is very rare, for even in those cases in which the vagina is supposed to be absent, bands of connective tissue are usually found running in the natural course of the vagina, and these bands must be considered to be rudimentary formations, even as they are in the uterus.

According to Winckel, absence of the vagina “occurs only in connection with a defect of the vulva or uterus.” Cases are on record, in which the uterus has been sufficiently developed to perform its functions, and yet the vaginal canal was entirely absent. In such cases the condition becomes of practical interest, owing to the necessity of affording relief to the patient.

The symptoms, and the methods for their relief, are practically the same as those indicated under atresia of the vagina, which, when congenital in its origin, is essentially the same as this condition.

2. **RUDIMENTARY VAGINA.**—This may consist only of a blind pouch immediately back of the hymen, which, if the hymen were absent, might mislead one into supposing the condition to be that of imperforate hymen. Such a blind pouch may also exist near the cervix, or two such pouches may be present; separated by

more or less membranous tissue. The condition is essentially equivalent to an entire absence of the vagina, and the treatment is the same as in atresia vagina.

3. UNILATERAL VAGINA.—This malformation occurs especially in connection with the uterus unicornis, only one of Müller's ducts having developed in the vaginal region, forming but one-half the vagina. The condition is not of practical interest, and is difficult of demonstration.

4. DOUBLE VAGINA.—As has already been noted, when there is a double uterus the septum usually extends downward, forming in addition a double vagina, the hymen being also usually double. Cases are recorded wherein the vagina alone is double; but in such cases one side is always rudimentary. When both halves are equal, the septum may be so thin and so easily distended, that one side is readily dilated at the expense of the other. The septum may also occur in the middle of the canal, forming equal halves; or, one side may be narrower than the other. Sometimes the septum is present only in the lower, or in the upper part of the vagina, its usual seat being at the junction of the upper with the middle thirds of the canal.

5. CONGENITAL SMALLNESS OF THE VAGINA.—This is usually associated with some malformation of the uterus, more especially the foetal, or infantile uterus, but it may also exist independently of these conditions. The canal may be so small as to admit only an ordinary catheter, or it may be large enough to permit coitus and not interfere with parturition. The narrowness may exist, as it usually does, throughout the whole canal, or it may affect only a portion, or several distinct portions, a condition resulting evidently from inflammatory processes in the foetus.

6. CONGENITAL CLOACA OF THE VAGINA.—By this term is understood a malformation in which the rectum and vagina, and sometimes the bladder as well, open into a common external orifice. In such cases the external anus is either absent or occluded, and the contents of the rectum are evacuated through the opening into the vagina. Sometimes the opening is small, and is provided with a sphincter, so that evacuations take place regularly and without much inconvenience. More often, however, this is not the case, and inversion or prolapsus of the rectum takes place through the large opening, the stools are involuntary, and the patient suffers from the annoyance and uncleanness in spite of all efforts to the contrary, though no conditions arise which endanger life unless the rectum, having bent at a right angle, allows a retention of feces in the pouch thus created, followed by the usual symptoms of intestinal obstruction—stercoraceous vomiting, peritonitis and death.

PROGNOSIS.—In those cases in which the condition has not

already produced a disease of the rectum, or where there are no co-existing malformations of a serious character, cloaca of the vagina can be remedied by a comparatively simple operation, and the fecal evacuations made to occur in the normal way.

TREATMENT.—The surgical treatment of the malformation consists in making an incision of about one inch in length in the perineum, from before backward, and sufficiently deep to expose the rectum, the lower portion of which is loosened from the surrounding tissues by means of a blunt hook. The rectum is then severed from its vaginal connection, and its opening attached, by means of sutures, to the opening in the perineum. The edges of the vaginal opening are then freshened and closed by sutures. Winckel says (1) that “after the rectum has been separated from the vagina, the opening in the latter soon becomes so reduced in size that it may be closed by cauterization. When there are narrow, fistulous canals in the perineum, they should be opened into the rectum, separated from the intestine, and the sutures passed backward to the coccyx.”

ATRESIA VAGINÆ.

DEFINITION.—A congenital or acquired occlusion of the vaginal canal. The term signifies a complete closure of the canal, but it applies also to cases in which the occlusion is so nearly complete that only a probe or sound may be passed through the remaining orifice. The obstruction may be at the hymen, when it is known as atresia hymenalis, or imperforate hymen, or it may be anywhere in the course of the canal.

PATHOLOGY.—Atresia hymenalis is always congenital. The hymen, not being perforated, forms a continuous membrane which entirely occludes the vaginal entrance. The membrane is always thicker than normal. The condition is not recognized until attention is called to a retention of the menstrual fluids. The accumulation of blood causes the hymen to bulge, and at the same time it dilates the vagina. If not soon relieved, perforation into the bladder or rectum may occur, or the dilatation may involve the uterine canal, and even the Fallopian tubes, though it is claimed that the distension of the latter occurs from hemorrhage from the mucous membrane of the tubes themselves, the uterine ends being undilated. Rupture of the uterus or of the Fallopian tubes may take place, or pelvic hemocele may form, caused by the blood escaping from the fimbriated extremities of the tubes.

Atresia vaginalis may be either congenital or acquired. If congenital, it may result from an arrest of development of Müller's ducts, constituting what has already been described as a congenital

1) Diseases of Women. Parvin, p. 124.

absence of the vagina, or these ducts may have developed more or less imperfectly, so that but a portion of the canal remains obliterated, or a thick, firm membranous band may pass from one portion of the canal to another, causing a transverse occlusion—membranous atresia of the vagina. Acquired atresia may occur at any point in the vaginal canal, and be of greater or lesser thickness, according to the nature of the various conditions which give rise to it. It is most often located at the lower third, and might be mistaken for an imperforate hymen, but that retained fluids cause no bulging.

The atresia may be complete, but more often one or more small orifices exist, through which a probe may be passed, though these are frequently difficult to find. In such cases, dilatation does not occur to such an extent as in congenital atresia, sufficient blood escaping to prevent this disaster. In partial atresia, conception has been known to occur, and the condition discovered only at parturition. Complete atresia may give rise to similar pathological changes and results as have already been noted as being caused by atresia hymenalis.

ETIOLOGY.—Congenital atresia results either from an abnormal development of Müller's ducts or from inflammatory processes occurring during foetal life. Acquired atresia most often results from a process of sloughing and cicatrization of the vaginal walls. This condition may be created by any of the following causes: Injuries during childhood; prolonged and difficult labor; chemical agents locally applied; impaired vitality, resulting from diphtheria or other infectious diseases (scarlet fever, typhus, measles, small-pox, cholera, etc.); gangrenous vaginitis; mechanical agencies, pessary, etc. Atresia may also result from a superficial inflammation of the vaginal mucous membrane, resulting in adhesion of the apposed surfaces.

SYMPTOMS.—These are first manifest at puberty, and are due to the distension of the occluded canal by the accumulated menstrual blood. Often the pains are at first only moderate, and are supposed to indicate simply the advance of puberty, the menstrual molimina. They increase in severity from month to month, until they take the form of a violent uterine colic, being of a spasmodic, contractive character, owing to the efforts of the uterus to expel the accumulation. As the vaginal sac becomes more and more distended the suffering becomes more continuous, with shorter intervals of relief. Frequently the distended vagina presses upon the bladder and rectum, causing more or less disturbance of their respective functions. The symptoms gradually increase in intensity, and, unless relieved by surgical interference or by spontaneous rupture of the occluding membrane, they are finally followed by

the results already mentioned under pathology; or, less often, there may result a simple or septic peritonitis, independent of the rupture; or, at times, a hematocele. Again, in still other cases, the patient may escape all these results, only to have her life worn out by a variety of secondary nervous and cerebral disturbances. In those cases in which, from absence of the uterus, or other causes, menstruation does not occur, all the above symptoms will be absent and the condition may only be discovered on account of difficulty in coition. Many cases of this character are recorded, and several are reported where for years the sexual act had been performed through the dilated urethra, attention finally being called to the condition by an incontinence of urine or other vesical difficulty.

DIAGNOSIS.—In atresia hymenalis the bulging forward of the membrane from the retained secretion will be readily recognized. If the obstruction is higher up, its nature and extent must be determined by a recto-abdominal examination, or in some instances it may be better ascertained by introducing a sound into the bladder and the index finger of the right hand into the rectum. Such an examination, aided by the history of the case and the characteristic monthly occurrence of the symptoms, with their gradually increasing intensity, will usually serve to remove all doubt as to the nature of the condition. If the vagina be entirely obliterated, a hard fibrous cord will be felt extending along its course. If the atresia be partial, the cord will be felt only as far as the septum extends. If the upper portion of the vagina be distended with blood, this will be readily distinguished by a characteristic tense elastic feel, like that of a rubber ball, and not infrequently the uterus will be detected as a smaller, firmer tumor lying immediately above the accumulated blood.

PROGNOSIS.—In atresia hymenalis the obstruction is readily overcome, but the procedure is attended with more danger than would naturally be supposed, as septic conditions frequently follow and death results.

In congenital atresia the prospects of being able to establish and retain a new vaginal canal are quite unfavorable, yet it has often been accomplished. In acquired atresia the prognosis as to ultimate results is less favorable in proportion to the extent of the adhesions, and can only be said to be good when they are low in the vagina. There is always great danger that recontraction will follow sooner or later after an operation in spite of the most careful treatment. Should the blood-sac extend to the uterus, and especially if the Fallopian tubes be distended, a sudden evacuation may permit the entrance of air, and give rise to septic endometritis; or, uterine contractions may be excited which either force

blood through the tubes into the abdominal cavity, or cause a rupture of the tubes and a consequent hemocele. Dr. Emmett dissents from this view, but the preponderance of testimony is greatly in its favor. He says (1) "The objections to the rapid evacuations of the retained fluid are entirely theoretical. It would be impossible on account of the tenacious character of the fluid, to empty the uterus so rapidly as to produce any shock. If such a result was likely to follow the rapid evacuation of fluid from the uterus, it should at least sometimes occur from the sudden escape of the liquor amnii."

TREATMENT.—In the outset it should be thoroughly understood that whatever procedures may be necessary, for the reasons already given, the evacuation of the imprisoned blood should be accomplished with the greatest caution. In all cases, either of hymenic or of vaginal atresia, when such a course is possible, the contents of the blood-sac should be slowly evacuated by means of an aspirator. Only a small quantity should be removed at a time, the operation being repeated every two or three days until the sac is emptied. If an aspirator cannot be procured, or if for any reason its use is inadmissible, resort may be had to puncture by means of a small trocar and cannula. After the blood has been withdrawn, the action of the aspirator should be reversed, and the cavity carefully and repeatedly washed out with tepid carbolyzed water; or, if a trocar and cannula has been used, the carbolyzed water may be gently thrown through the cannula by means of a Davidson's syringe. This operation should be performed about eight days after the menstrual period, but never during the period. If there be an imperforate hymen the opening may then be enlarged by means of a crucial incision, or the membrane may be grasped with a pair of forceps and a piece snipped out by means of a pair of curved scissors.

The patient should be required to keep her bed for several days, and the cavity be washed out in case symptoms of septicæmia develop.

In vaginal atresia, if the blood cannot be reached through the ordinary channels, and the symptoms are urgent, puncture may be made through the rectum, or even through the abdominal wall, especially if an aspirator needle be used. The next step consists in an operation to establish a permanent opening for the escape of the menstrual fluids; or, indeed, this operation should, in most cases, precede the evacuation of the imprisoned blood, the contrary course being pursued only when demanded by the urgency of the symptoms. This operation has also been performed in cases of vaginal atresia, where there were no evidences of imprisoned blood,

1) *Op. Cit.*, p. 216.

but where a normal sized uterus had been discovered, attended by a condition of amenorrhea, and also in a few cases where "the necessity for sexual intercourse seemed apparent." In cases where there is no room for an artificial vagina, the urethra and bladder lying immediately upon the rectum, Dr. Fritsch recommends dilating the urethra, and producing an artificial vesico-vaginal fistula, so "that the retained and future menstrual blood flows into the bladder." He does not favor puncture from the rectum "on account of the penetration of intestinal gases and consecutive sloughing."

The details of the ordinary method of operation for vaginal atresia, by the formation of an artificial vagina, is as follows:

The patient having been anæsthetized, and the bladder emptied, she is placed upon her back, before a good light, her thighs being held apart by assistants, one of whom also retracts the labia. A sound is then passed into the bladder and held firmly by the other assistant, who causes it to press gently downward so that it may be felt and followed as a guide by the operator. The index finger of the left hand is then introduced into the rectum and used as a guide, and also to retract the rectum and prevent its injury. If possible, it is better to have this done by an assistant in order that the operator may have both hands free. Then, with a pair of curved scissors, he makes a transverse incision at the point where the septum begins, midway between the urethra and the rectum, and introducing the index finger of the right hand carefully tears a passage through until the cervix is reached, unless there is an accumulation of blood, in which case this is first evacuated with an aspirator or trocar and cannula, according to the rules already laid down. It should be observed, after the first incision, that the parts are to be *torn*, and not *cut*. This is much the safer plan in all respects, and it has been proved that by this method there is much less danger of cicatrization and contraction after the operation. After the cervix has been reached, the wound is carefully packed with strips of lint saturated with carbolized oil. This dressing is removed on the following day, and a tightly fitting glass plug (Fig. 78) is introduced into the vagina, secured by a T bandage or by tapes, and worn for several weeks, or even months, if there appears to be a tendency to contraction from above, as is often the case, especially when the canal has been obliterated throughout its entire length.

FIG. 78.—Sims' Glass Vaginal Dilator

CHAPTER X:

VAGINITIS. VAGINISMUS.

VAGINITIS.

SYNONYMS.—Colpitis. Elythritis. Blennorrhea.

DEFINITION.—Inflammation of the mucuous membrane, lining the vagina.

VARIETIES.—Vaginitis may be either simple, specific, granular, or diphtheritic. Winckel describes also the mycotic, gummatous or syphilitic, dysenteric, erysipelatous, and vesiculo-herpetic varieties.

Simple or specific vaginitis may also be either acute or chronic, but the difference between the two clinically is only in degree and not in character. So, too, is it difficult, apart from their history, to distinguish between the simple and specific varieties.

PATHOLOGY.—In acute vaginitis the mucuous membrane is congested, swollen, and its arterioles distended. At first the secretion is diminished, later it becomes profuse; at first it is transparent, but it soon becomes cloudy, milky and purulent. The epithelium rapidly exfoliates. The papillæ are swollen and appear as little nodules over more or less of the vaginal surface. Not infrequently the parts become œdematous, or the deeper tissues become involved and a true plegmonous process is established. The character of the secretion is described in the chapter on Leucorrhœa. If the vaginitis be specific, due to gonorrheal poison, there is little essential difference in the pathology, except that the inflammation more often involves the urethra and the lower part of the vagina, and the secretion is more abundant, and is more purulent in character, owing to suppuration of the glands of Bartholini, and it is often tinged with blood.

In granular vaginitis the papillary swelling already referred to becomes very widespread, giving the whole surface of the vaginal mucous membrane an irregular, uneven appearance, like granulations. It appears to be only an aggravation of the papillary hypertrophy which has already been mentioned as present in simple vaginitis, and does not differ essentially from that variety of the disease.

Diphtheritic vaginitis may develop at certain points only, where abrasions may have occurred, either from injury or from exfoliation of the mucous membrane during simple vaginitis; or

it may involve more or less of the entire vagina, and include the vaginal portion of the cervix, the whole vaginal surface being covered with diphtheritic membrane. In such cases the swelling is very great, almost including the vaginal canal. Schroeder (1) says he has seen the cervical mucous membrane so swollen as to protrude from the external os, and to the touch appear like a mucous polypus as large as a walnut. In the healing process, which advances very slowly, considerable stricture may be produced, and the vault of the vagina may become adherent to the vaginal portion of the cervix.

In appearance the diphtheritic membrane is homogeneous, and is of a gray, whitish, or yellowish-white color. Hilderbrandt has described what he called a *vaginitis ulcerosa adhesiva*, occurring in old women when the epithelium is very thin or when it is thrown off in patches, and adhesions take place between the adjacent walls, especially about the cervix, the vaginal pouch, and sometimes more or less of the canal becomes obliterated. As has already been stated, the changes in chronic vaginitis differ only in degree from those in the acute variety.

ETIOLOGY.—Gonorrhea is the most frequent cause of acute vaginitis. Next in order of frequency are the traumatic causes. These may be of any description, and include excessive coition; efforts to produce abortion; efforts to prevent conception; surgical procedures; cauterization; chemical agents; ill-fitting pessaries; parturition; cold water injections; masturbation, etc. Vaginitis may also arise from exposure to cold or moisture; from dancing during menstruation; from constipation; from uncleanness; from retained and putrified secretions, and from irritating discharges from the uterus. Vaginitis may also result secondarily from the blood states of scrofula, phthisis, diabetes, chlorosis, etc., and may occur in the course of the acute exanthematous and infectious diseases—measles, small-pox, typhus, cholera, and dysentery. Under the latter conditions we usually find the diphtheritic form, and also after parturition. Localized diphtheritic deposits are frequently seen about old fistulæ, carcinoma, or in ulcerating fibroids and polypi, and about ill-fitting pessaries that have been worn for a long time. Chronic vaginal catarrh may also be but one expression of a general catarrhal state of the system.

SYMPTOMS.—Acute vaginitis may be ushered in by the usual febrile symptoms which attend an initial inflammation elsewhere. The following symptoms are usually present: heat and burning in the vagina; aching and sensation of weight in the perineum; frequent desire to urinate, the passage of urine being accompanied by a scalding sensation; profuse, offensive, muco-purulent leucor-

1) Op. Cit., p. 495.

rhea ; excoriation and itching of the vulva and surrounding parts. In specific vaginitis the symptoms are the same, except that the urinary symptoms are more pronounced. In chronic vaginitis similar symptoms are present, but in a milder degree.

DIAGNOSIS.—Examination with the speculum, or by retracting the labia, will reveal the inflamed mucous membrane, which is red, swollen, painful to the touch and covered more or less with the muco-purulent discharge. Usually the history of the case, together with the relative intensity of the urinary symptoms, will decide as to whether the vaginitis is simple or specific. In some cases a microscopical examination of the discharges is necessary for a full understanding of the condition. In specific vaginitis the microscope will show what is termed the gonococcus, in addition to the elements found in the simple form. (See chapter on Leucorrhea).

PROGNOSIS.—This is usually favorable, yet it must be remembered that acute vaginitis is very liable to recur upon slight provocation, or run into a chronic state which proves more difficult to control. Chronic vaginitis can usually be cured in a comparatively short time if the patient can be induced to follow the necessary hygienic rules, especially in the practice of strict sexual abstinence. In vaginitis resulting from phthisis and other blood states the prognosis is less hopeful, and depends entirely upon our ability to remove the constitutional dyscrasia. In diphtheritic vaginitis the prognosis is grave in proportion to the extent that the system is affected by the poison. Sterility may be a result of vaginitis, owing to the fatal effects of the acid discharges upon spermatozoa.

TREATMENT.—The patient should rest quietly in bed, and use hot water injections, with occasional injections of a half-pint of tepid water in which has been placed one-half ounce of Hydrastis, fluid extract, and the same quantity of glycerine. Calendula or Hamamelis will sometimes answer a better purpose than the Hydrastis. These may be applied on cotton tampons if desired. If the discharges are offensive, carbolic acid should be used, either with or without the above remedies.

Tepid sitz baths are often quite beneficial. Emollient injections of flaxseed, oatmeal or slippery elm may be used. In severe cases a paste of Fuller's earth, made with water and a little glycerine, has been used with success. Fill the vagina with this mixture, and also apply it over the external parts. After it has become dry wash out the vagina with a syringe, and use a fresh supply.

In diphtheritic vaginitis a wash of permanganate of potash or of diluted alcohol is most beneficial. A careful selection and administration of the indicated remedy is always essential.

The remedies most often used are :

: : . . . : :

ACUTE VAGINITIS.—Aconite, Arsenicum, Cannabis sat., Belladonna, Cantharides, Kreasote, Mercurius, Nitric acid, and Rhus tox.

DIPHTHERITIC VAGINITIS. — Apis, Arsenicum, Belladonna, Lachesis, Mercuriusi odium, Nitric acid.

CHRONIC VAGINITIS.—Arsenicum, Calcareo carb., Cantharides, Carbo veg., Conium, Graphites, Kreasote, Ferrum, Hydrastis, Iodium, Mercurius, Phytolacca, Pulsatilla, Sepia, Silicea, Sulphur.

The chief indications for the use of each of these remedies are sufficiently given in the chapter on Leucorrhœa, to which the reader is referred.

VAGINISMUS.

DEFINITION.—An excessive sensitiveness about the hymen and vaginal orifice, so that any contact or irritation gives rise to spasmodic contraction of the sphincter muscles of the vagina.

PATHOLOGY.—This condition is supposed to be purely nervous in its character, and not necessarily accompanied by any pathological changes, though these are sometimes found in connection with it, and may have occurred as a result of the continued nervous irritation, or of the efforts made to overcome the spasmodic constriction; or, they may have been present primarily, and been the original cause of the trouble. There is usually observed redness, erosions, swelling of the follicles, and papillary excrescences at the navicular fossa. In most cases the hymen or its remains are found, being usually thick, large and resistant to the touch. According to Sims, the seat of the disease is in the base of the hymen, or at the upper margin, nearest the urethral commissure.

ETIOLOGY.—Undoubtedly the most common cause of vaginismus is repeated and unsuccessful attempts at coitus. This may be due to awkwardness on the part of the man, or to some obstacle on the part of the woman, such as a small vulvar orifice, or a rigid, resisting hymen; or, the male organ may be disproportionately large. The condition may be also induced by disease of the genitals; endometritis; lacerated cervix; displacements; ovarian irritation; vaginitis; vulvitis; fissure; herpes or eczema of the vulva; an inflamed hymen, or hyperæsthesia of the remains of the hymen; hemorrhoids; fissures in the rectum; pin-worms; irritable caruncle of the meatus.

Vaginismus may also be present in patients of a nervous and sensitive temperament where none of these causes can be discovered, the condition being undoubtedly due to purely nervous causes. Probably mental emotions—excitement and fear, especially in ill-mated couples—have much to do with producing vaginismus, and no doubt hysteria often plays an important part in its causation.

SYMPTOMS.—The chief symptom is excessive pain on attempt at sexual intercourse, the slightest contact causing spasms of the muscles, and, according to Sims, there is often a general muscular agitation, intermittent rigors, and a most deplorable state, amounting even to agony and terror, attempts at intercourse being sometimes followed by convulsions and syncope. The very thought of intercourse, or of a physical examination, will often throw the patient into a state of violent excitement and nervous trepidation.

DIAGNOSIS.—Inspection of the genitals may reveal one of the causative conditions already mentioned, and upon touching the parts the patient shrinks from the finger and complains of agonizing pain, the muscles being at once in a state of violent contraction. If no cause is readily discovered, the patient should be placed under an anæsthetic and subjected to a careful and thorough examination. This, with the history of the case, will undoubtedly settle the diagnosis. Distinction should be made between vaginismus and those cases of dyspareunia which are unattended with spasm. Cases are recorded in which an examination could readily be made, and a large sized speculum be introduced, without causing pain or spasm, yet these were induced upon the slightest attempt at coitus. Such cases are undoubtedly of purely nervous origin.

PROGNOSIS.—If a local cause can be found, and one which can be removed, as is fortunately often the case, the prognosis is good. Cases of purely nervous origin are, like hysteria itself, very difficult to cure. Spontaneous cures seldom occur, in the absence of treatment the condition lasting indefinitely.

TREATMENT.—This consists in the removal of the local cause if such can be ascertained, and the administration of the appropriate remedy for the nervous condition that may be present, whether that be of primary or secondary origin. In most cases of a severe character, in which an irritable hymen is present, Sims' operation is probably the best treatment yet devised. His plan is as follows: Place the patient on her back, as for lithotomy; pass the index and middle fingers of the left hand into the vagina; separate the walls laterally, so as to dilate the vagina as widely as possible, putting the fourchette on the stretch; then, with a common scalpel, make a deep cut through the vaginal tissue on one side of the mesial line, bringing it from above downward, and terminating at the raphe of the perineum. This cut forms one side of a Y. Then pass the knife again into the vagina, still dilating with the fingers as before, and cut in like manner on the opposite side, from above downward, uniting the two incisions at or near the raphe, and prolonging them quite to the perineal integument. Each cut will be about two inches long, that is, half an inch or more above the edge of the sphincter, half an inch over its fibres,

and an inch from its lower edge to the perineal raphe. He then continues the treatment by having the patient wear, for several weeks, one or two hours night and morning, his glass dilator (Fig. 78). When the vaginismus is evidently due to remnants of the hymen causing irritation, it may sometimes be necessary only to snip these off with a pair of scissors, but ordinarily Sims' operation is required.

A bloodless and less severe method, especially applicable where no local lesion can be found, is the forcible dilatation of the parts with the fingers or an appropriate instrument. The patient is anæsthetized, and the parts stretched until the muscular fibre can be felt yielding to the traction. The glass dilator is then introduced and worn until all tendency to spasm is overcome. In mild cases the vaginal dilator worn a few hours each day may remove all the trouble. The size of the dilator should be gradually increased. Coitus under an anæsthetic has been practiced, with the hope of securing conception, but the plan is not to be recommended. Application of cocoa butter, cosmoline or Belladonna ointment are sometimes beneficial. Whatever local measures may be employed the hygienic care of the patient, and her constitutional treatment, should not be neglected. Coition should be entirely proscribed during the course of treatment, and for several weeks after, even if it be necessary for the patient to leave home temporarily for that purpose. Indeed, a change of scenery is often in itself of great benefit in these cases. Daily sitz-baths should be used, and the patient should be advised to take as much exercise in the open air as is possible without carrying it to the point of actual fatigue. In many cases a careful observance of these rules, together with the administration of the indicated remedy, will effect a cure. As a rule, therapeutic indications are based upon the general symptoms of the patient rather than upon the local conditions. The remedies most often employed are Arnica, Belladonna, Gelsemium, Cuprum, Caulophyllum, Hyoscyamus, Ignatia, Kali brom., Macrotin, Nux vomica, Mercurius, Platina, Hamamelis, Plumbum, Pulsatilla, Thuja, Zincum.

CHAPTER XI.

PROLAPSUS VAGINA. CYSTOCELE. RECTOCELE. ENTEROCELE.

PROLAPSUS VAGINA.

DEFINITION.—A downward protrusion of the vaginal walls. This condition is usually secondary to and associated with prolapsus uteri, or it may occur in connection with cystocele, ovaricele, enterocele or rectocele, yet it may exist as a primary displacement, independent of any of these conditions, and as such it will here be briefly considered.

ETIOLOGY AND PATHOLOGY.—Prolapsus of the vagina occurs from relaxation and atony of the vaginal walls, and usually results, as do all the varieties of vaginal hernia mentioned above, from retarded involution of the vagina after parturition. There may also be laceration of the perineum, with a torn or enfeebled condition of the vaginal sphincters, and sub-involution of the uterus, thus weakening the perineal supports and lessening the power of resistance to the increased weight and pressure from above, caused by the enlarged and congested uterus, which crowds down upon the relaxed vaginal walls and causes them to be displaced. Prolapsus may also occur from senile atrophy of the vaginal walls, and from the continued pressure or traction of tumors.

The pathological changes consequent upon a prolapsus of the vagina are thus described by Winckel (1): “When a portion of the vagina has passed through the introitus and remains exposed to the air and other irritants for any time, the mucous membrane becomes paler, firmer, and its folds are effaced; it appears like cuticle, from the transformation of its epithelium, and both mucous membrane and the tissue beneath become infiltrated, cedematous and passively congested. Associated with the above changes are found hyperplasia and hypertrophy of the muscular layers. Varicosities are often produced by stasis in the vessels. In elderly patients the walls of the inverted part are very much thinned by the disappearance of the para-vaginal adipose tissue, and look smooth and glossy. There may also be loss of substance in the more dependent parts near the perineum, associated with slight swelling of the adjacent parts, the wound having a secreting surface with reddened edges. Such spots are to be regarded as

1) Diseases of Women. Parvin, p. 126.

decubitus, since they are subjected to pressure and irritation in walking, sitting and lying; subsequently they become enlarged and unhealthy-looking from dribbling of urine and difficulty in maintaining cleanliness."

SYMPTOMS.—These are usually a sensation of bearing down, fullness and heat in the vagina, sometimes extending to the vulva, together with more or less discomfort and uneasiness in the locality when walking or during any muscular exertion. Physical examination will reveal an elastic, globular tumor between the labia, the mucous covering of which is sometimes excoriated and ulcerated, or, in cases of very long standing, it may appear smooth, shiny and tough, and be covered with pavement epithelium. Simple prolapsus, not involving hernia of any of the pelvic organs, rarely occurs, and when it does it is usually confined to the posterior wall, which peels off from the rectum, without causing rectocele.

The treatment of simple prolapsus of the vagina is practically the same as when complicated with some form of vaginal hernia, and will be considered later.

CYSTOCELE.

SYNONYMS.—Cystocele vaginalis; vesico-vaginal hernia.

DEFINITION.—A prolapsus of the anterior vaginal wall, accompanied by a descent of the posterior wall of the bladder, the two being closely adherent to each other.

PATHOLOGY.—The lower portion of the bladder is pushed downward and forward under the urethra, forming a pouch, which becomes filled with urine. This pouch usually is so small that it remains behind the symphysis pubis, but it may form a tumor as large as a child's head, and lie external to the vulva. The urine in the pouch cannot be evacuated during micturition, and becomes decomposed, giving rise to vesical catarrh. The fermentation accompanying this catarrh may cause the formation of phosphatic concretions, calculi having frequently been found in the bladder of persons suffering with cystocele.

SYMPTOMS.—A frequent desire to urinate, with dysuria, are the chief symptoms, though dysuria is not invariably present. There is usually more or less ropy mucus in the urine.

DIAGNOSIS.—Physical examination will show a yielding, elastic tumor, which is easily reduced, but reappears at once upon slight straining of the abdominal muscles. If the diagnosis is in doubt, a catheter may be passed into the bladder with its point downward, and the end will be felt protruding against the walls of the pouch.

PROGNOSIS.—The prognosis is usually favorable, proper surgical measures being quite effective in producing a cure. If a

cystocele be neglected, it may finally give rise to disease of the kidneys or wasting of the ureters, which may result fatally.

RECTOCELE.

SYNONYMS.—Rectocele vaginalis; recto-vaginal hernia.

DEFINITION.—A prolapsus of the posterior vaginal wall, accompanied by descent of the anterior wall of the rectum, the two being loosely adherent to each other.

PATHOLOGY.—The inward and downward protrusion of the rectum forms a pouch, which becomes filled with feces, creating a tumor as large as the fist or larger. The tumor is usually flabby, and easily reduced, but is occasionally firm and hard, from impacted scybala. The condition is analogous to that of cystocele, but is of much rarer occurrence, owing to the loose attachments between the vagina and rectum, allowing a more ready separation when prolapsus of the vagina takes place.

ETIOLOGY.—Rectocele, when not associated with and caused by prolapsus of the uterus, usually results either from laceration of the perineum or from the pressure of scybala in the rectum, or, more often, from the loosening and distension of the vaginal walls by pregnancy and labor.

SYMPTOMS.—The symptoms are those which result from the accumulated hardened feces, irritation and inflammation of the mucous membrane, mucous discharges, tenesmus and constipation. Hemorrhoids frequently result from the interference with the portal circulation. Sometimes there is loss of appetite, pain in the abdomen, nausea and deranged digestion.

DIAGNOSIS.—The tumor may be seen projecting from the posterior vaginal wall, sometimes outside the vaginal outlet. It is usually soft, but sometimes quite solid from the presence of hardened feces. The finger should be passed through the anus into the pouch, and the relations of the rectal and vaginal wall thus determined. Careful palpation will serve to differentiate from an abscess or cyst.

ENTEROCELE.

SYNONYMS.—Enterocoele vaginalis; entero-vaginal hernia.

DEFINITION.—A descent of the peritoneum and a portion of the small intestines into the vaginal canal, sometimes reaching the perineum.

PATHOLOGY.—Enterocoele may be anterior or posterior. In the former the intestine is forced down between the posterior aspect of the bladder and the anterior vaginal wall. This form is extremely rare. Usually the intestines descend between the anterior rectal and posterior vaginal wall. A loop of the intestine

having once descended into Douglas' cul-de-sac cannot escape; gradually stretching the surrounding tissues, it gradually descends, pushing the posterior vaginal wall before it. If the entrance to Douglas' cul-de-sac be very narrow, strangulation of the hernia may occur, but the chief danger arises from strangulation or laceration during childbirth. Did none of these accidents happen, enterocele might exist for a long time without producing any evil results.

DIAGNOSIS.—The diagnosis of enterocele is important in order to avoid the mistake of puncturing it for a supposed vaginal tumor. On examination, a bulging mass is found in the vagina, having a soft elastic feel, as if filled with air, yielding a tympanitic sound on percussion, and having a peristaltic movement. The uterus is in normal position, which will distinguish it from prolapsed uteri, and rectal examination will serve to differentiate it from rectocele. If any doubt remain as to the character of the tumor, a small aspirator needle will enable the physician to settle the question.

The treatment of the several conditions described will be given in the next chapter.

CHAPTER XII.

TREATMENT OF PROLAPSUS AND HERNIA OF THE VAGINA.

1. PERINEORRHAPHY. 2. ELYTRORRHAPHY. 3. EPISIORRHAPHY.

IN recent cases the patient should be placed in the knee-chest position and the parts restored to their normal place, after which the patient should lie upon her back for several days, with the hips elevated. If there is a tendency to return upon assuming the upright posture, a cotton tampon may be inserted, or a properly fitting ring or Hodge pessary may be adjusted. Allopathic authorities recommend local astringents, such as tannin, alum, or white-oak bark, either by injection or by saturated tampons. Vaginal prolapsus or hernia usually comes on slowly, and does not readily yield to treatment. In such cases the patient's general health should be improved by the observance of proper hygienic rules, and the constitutional remedies carefully selected according to the symptoms of each individual case. The remedies most often indicated are: Arsenicum, Calcareo carb., Cinchona, Ferrum, Helonias, Nux vomica, and Sepia. The parts should be frequently bathed in cold water, and the bladder and rectum frequently and regularly evacuated. Valuable aid is sometimes secured by using an external abdominal supporter with a perineal band, or by wearing a properly constructed pessary, or an inflated rubber bag.

A radical cure is seldom secured except by surgical procedures, which are, as a rule, comparatively simple in their character and very satisfactory in their results. The following are the varieties of surgical operations usually practiced:—

1. Perineorrhaphy—repair of the perineum.
2. Elytrorrhaphy—diminishing the calibre of the vagina.
3. Episiorrhaphy—uniting the labia majora.

The two operations first named are sometimes performed upon the same patient, constituting Elytro-perineorrhaphy. The details of the various operations are as follows:—

1. PERINEORRHAPHY.—Aside from its value in cases of vaginal prolapse and hernia resulting from a lacerated perineum, this operation is one of the most important in gynecology to the general practitioner, owing to the wide etiological influences of the condition it is designed to remedy. The operation may be either primary or secondary; that is, it may be performed immediately

after the perineal tear has occurred, or after cicatrization has taken place. The primary operation, except as a prophylactic measure, has nothing to do with the treatment of the various forms of pelvic hernia, and properly belongs to works on obstetrics, but for convenience it will be briefly described in this connection.

There exists considerable difference of opinion as to the advisability of operating immediately after delivery, but the majority of authorities agree with Scanzoni that "The operation should be performed just after the delivery, because it is more likely that the bleeding lips of the wound will then unite, and because vivification of the edges not being necessary, the procedure is simpler and less dangerous."

In cases where the sphincter ani and the recto-vaginal wall are seriously implicated, it is better to postpone the operation until the patient has otherwise entirely recovered from her confinement, but when the sphincter ani only is involved, the operation should not be deferred. The reason that the primary operation is often unsuccessful is doubtless due to the fact that it is frequently performed in a hasty and careless manner, and often by an inexperienced operator, and also because the lochial discharges and urine are liable to enter the wound and prevent adhesion.

PRIMARY OPERATION.—The primary operation is performed as follows: The placenta having been delivered, the patient is placed upon her back with her hips well over the edge of the bed.

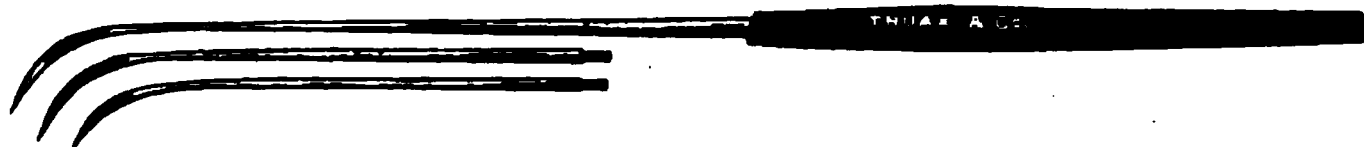


FIG. 79.—Peaslee's Perineum Needle.



FIG. 80.—Goodell's Perineum Needle.

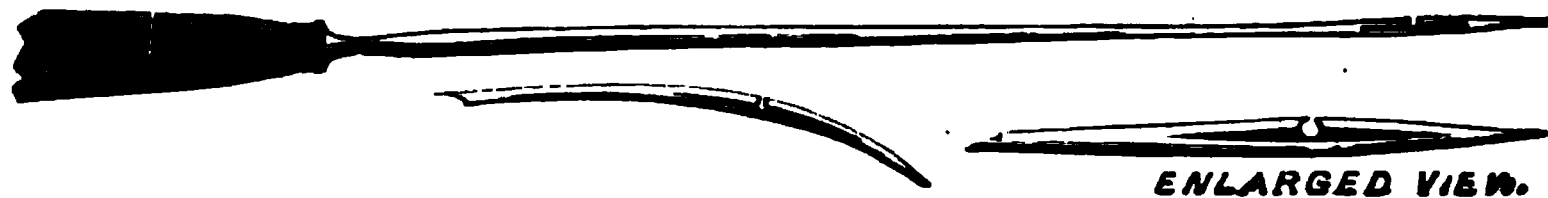


FIG. 81.—Skeen's Perineum Needle.

The parts are carefully cleansed with warm calendula water and any shreddy portions removed with the scissors. Anæsthesia is not usually required. I prefer Peaslee's needle and the silver suture. The first suture should be placed at the lower angle of the wound,

the needle entering about half an inch from the rupture makes the entire circuit of the wound and is brought out at the same distance from the rupture on the opposite side. Sutures are similarly placed about half an inch apart, the last suture being made stronger by causing it to traverse a portion of undenuded tissue before completing the circuit. If the rectum is involved, catgut sutures should be employed for that part, as they obviate the necessity of future removal. The wound should be protected from the discharges as much as possible, and the urine drawn with a catheter every four or six hours. The stitches should be removed on the eighth or ninth day.

It is not inappropriate to here state that in recent cases union may sometimes be secured without an operation, though I must confess that I have never been very successful in such efforts. In cases where the laceration is not extensive, or, where the presence of an epidemic, or other circumstance, contraindicates operative measures, it may be best to make the attempt. Dr. Ludlam says, (1): "In such cases my own practice has been to cleanse thoroughly with warm *Calendula* water, carefully removing all clots, bits of fat and shreds, and then to mold the edges as carefully as possible so as to bring the tegumentary perineum into its proper position. Then I place a firm compress that has been moistened with a mixture of equal parts of *Calendula* or of *Hamamelis*, glycerine and warm water, against the perineum, and while the limbs are flexed, put two or three adhesive straps across the buttock to keep the compress in position. This adjustment of the parts should be made with the patient lying upon her side. The compress may be freshened two or three times in twenty-four hours, and weak injections of *Calendula* water may be given per vaginum once or twice daily until the wound is healed. The knees should be tied together, but not tightly, for the first forty-eight hours. The bowels should be let alone, the patient should lie upon her side, and the urine should be taken with the catheter. I have practiced this simple plan of treatment for almost thirty years, and am confident that in a great majority of cases it is quite sufficient. It may sometimes be supplemented by the use of *serrefines*, which if they are the right kind and properly adjusted, will keep the edges of the wound from slipping before they have healed. If the patient is very nervous and apprehensive, she need not know that they have been applied, and the compress can be used at the same time."

2. SECONDARY OPERATION.—This operation consists in a vivification of the lips of the wound, and their approximation by sutures. It should never be performed until the patient has

1) *Diseases of Women*, 6th ed., p. 897.

entirely recovered from the effects of parturition, three months being the shortest time that should be allowed for this purpose. The operation may be required only to repair the perineal body, or it may be necessary also to operate for a rupture of the sphincter ani and more or less of the recto-vaginal wall. Ordinarily if only the sphincter ani is involved the entire rent may be repaired at one operation, but if the recto-vaginal septum be involved to any extent it is better first to restore the integrity of these parts, deferring the perineal operation until the wound thus created has entirely healed.

The patient should prepare herself for the operation by using the hot water douche daily for a week previous, and if any considerable leucorrhea be present, she should also use daily an injection of equal parts of fluid Hydrastis and fluid Calendula in a pint of warm water. If necessary, the bowels should be opened by an enema a few hours before the operation. Four assistants are desirable, but three will answer the purpose. One of these should administer the anæsthetic, two support the knees of the patient, while the fourth can hand instruments, wash sponges, and perform such other services as the operator may require.

The patient should be placed upon her back on a firm table, facing a good light, and the anæsthetic administered. One assistant stands on either side, facing the operator, and with one arm keeps the knees of the patient well abducted, while with the other hand they hold open the labia, taking care to keep them exactly in the same position on each side, and making no irregular traction in any direction. Retractors are more convenient than the fingers for this purpose. If the sphincter ani is torn, this must first receive attention. The opposite edges are carefully cut away with a long-handled bistoury or scissors, the whole of one side being re-

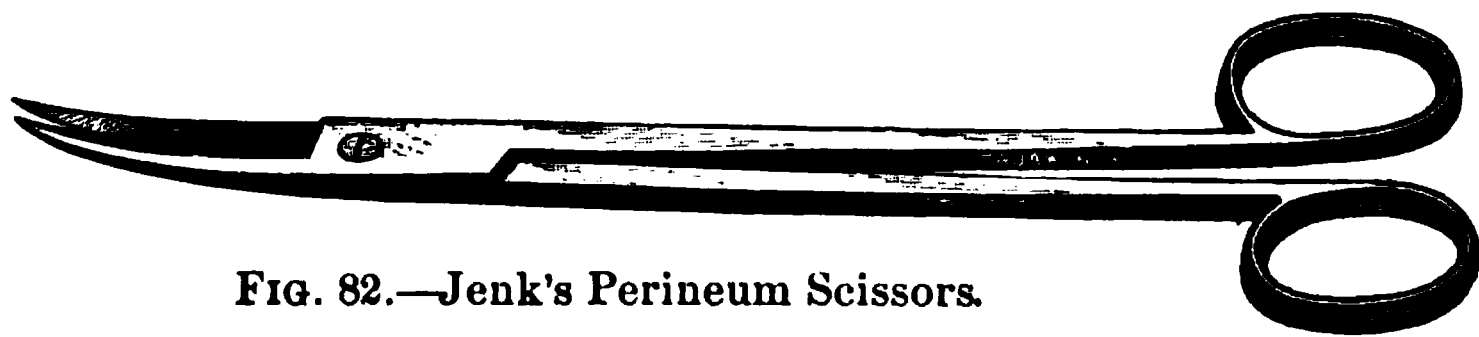


FIG. 82.—Jenk's Perineum Scissors.

moved in one strip, if possible, so that no islets are left behind. It is important that the cicatrix at the angle of the tear be removed, and in order to insure apposition of the raw edges at the angle, it is best to extend the laceration about an eighth of an inch.

This having been accomplished, the next step is to introduce the sutures. If the perineal operation is to be performed at the same time, and the sutures are interrupted, it is best to use catgut,

otherwise silver wire will answer the best purpose. If the rent in the recto-vaginal septum is extensive, interrupted sutures should be placed about one-fifth of an inch apart, being introduced by means of a needle with a short lateral curve (Fig. 83), such as are

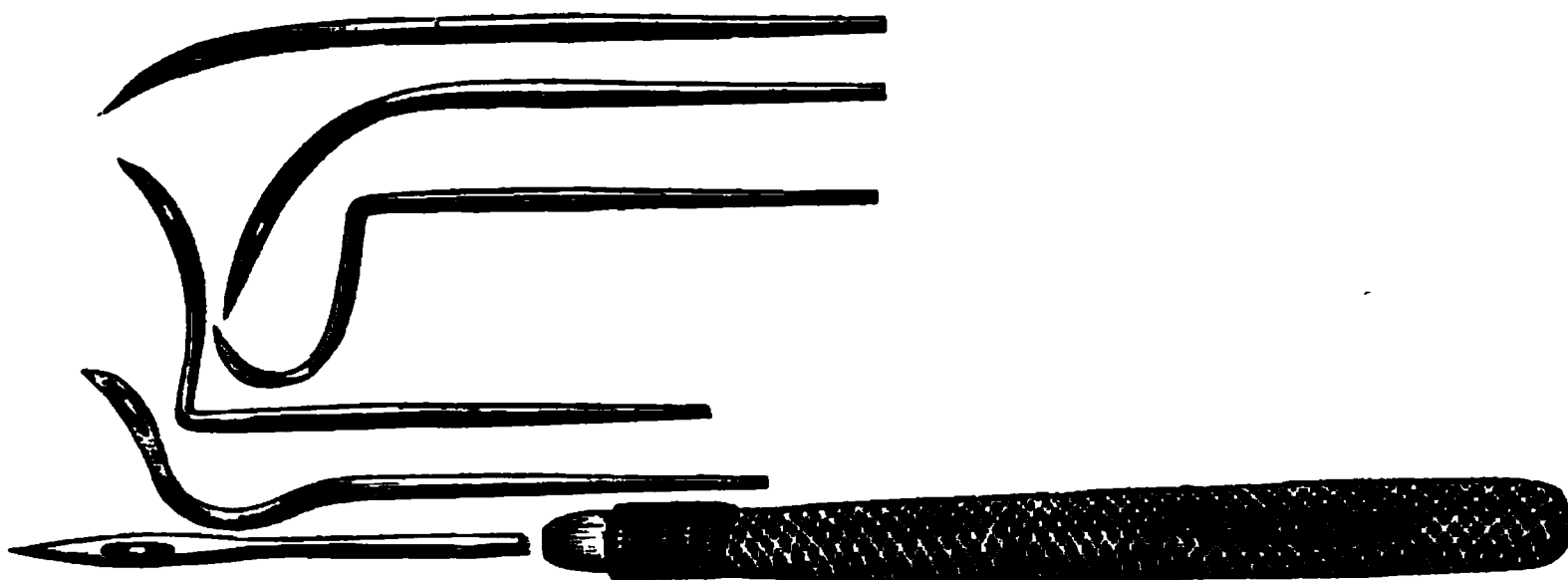


FIG. 83.—Needle with short lateral curve.

used in vaginal fistulæ. Catgut sutures are tied in the vagina and cut short; silver wire sutures are twisted and cut about half an inch from the wound. Dr. Thomas very plainly illustrates why a different method should be adopted in the introduction of the sutures, in order to secure "complete union of the ends of the severed muscle and complete closure of the rent in the bowel," so that not only will the rent in the genital fissure be closed, but the incontinence of feces and gases be avoided.

This method was first introduced and practically demonstrated by Dr. Emmett (1), and is fully elaborated in his valuable text-book (2). It consists in introducing the first needle as low down as the lower edge of the anus, pressing it upward through the recto-vaginal septum, completely encircling the rectal rent and returning bringing it out opposite the point of introduction on the other side of the anus. The index finger of the left hand should be introduced into the rectum to serve as a guide. "As the point of the needle punctures the skin in its exit, the finger may be withdrawn from the rectum to aid the passage of the needle. This can be done by the counter-pressure of a blunt hook, or by sliding back the tissues sufficiently with the fingers for the needle to be seized by the forceps and drawn through. The second suture is to be introduced just outside of the end of the muscle, and in the same plane with the divided rectal edge of the laceration. The third suture is to secure the vaginal edge of the laceration. It should be made to include the tissues liberally, and to sweep around the angle of the laceration at some distance beyond the course of the first and second sutures. This is necessary because

1) Medical Record, March 15, 1873.

2) Prin. and Prac. of Gynecology, p. 396.

this suture is the one most liable to cut through the recto-vaginal septum and leave a fistula. The other sutures are to be introduced as in a case of simple laceration.

"It is necessary to secure first the lowest suture. This is done by seizing the ends of the wire at the proper distance, so that the index finger may be used to slide the tissues firmly down on the suture, as moderate traction on the wire is made at the same time with the hands. The suture is then secured without relaxing the traction, by several half turns made on reversing the position of the hands from one side to the other. Each suture is thus in turn secured from below upward. Experience alone can indicate the proper amount of tension to be made, and success will depend, to a great degree, upon this part of the manœuvre. The parts should be brought just into apposition, and no more, for in a few hours there will be sufficient swelling to force the tissues into close contact. If the sutures have been twisted too tightly, and especially if they have been introduced in too superficial a manner, they will cut out from behind forward. This will leave a fistula, or the

FIG. 84.—Surface denuded in complete perineal rupture, and first two sutures in position.

tissues in front will become sufficiently strangulated to set up some inflammatory action, resulting afterward in a labial abscess."

The twisted sutures are to be left several inches long, and are to be secured by the same method as when used for simple laceration of the perineum.

Fig. 84 will illustrate the position of the first two sutures and

explain why it is, as Dr. Emmett says (1) "that a suture that takes this course, like the string at the mouth of a bag, puckers the open parts, draws them into apposition, and controls the action of the sphincter. The two conditions which we have most to fear as sources of failure after this operation are, first, recto-vaginal fistula, and, second, non-union of the sphincter. This method, to a great extent, secures us against both."

The repair of the perineum must now receive attention. The secondary operation differs from the primary in the fact that the surfaces of the torn perineum have become cicatrized, and require to be freshened before the sutures are introduced. This denudation should extend, as nearly as possible, over and a trifle beyond the area of the torn perineal walls. Fig. 85 represents the parts

FIG. 85.—Perineum freshened, with sutures introduced.

after denudation, with sutures inserted. This should be accomplished in the following manner: Sims' speculum having been introduced under the symphysis pubis, and the anterior wall lifted, an incision is made directly up the middle of the posterior junction of the laceration for about an inch and a half. This marks the base of the two triangular denudations to be made. Next make a lateral incision each way from the upper end of the mesial incision, forward, along and just beyond the edges of the torn surfaces to the labium majus, and another from this point on each side back to the very end of the vesical incision. The triangular flaps thus marked out are then dissected from behind forward, either with a pair of fine scissors or with the knife. Should the denudation be

1) Op. Cit., p. 140.

commenced in front, the backward flow of blood will greatly obscure subsequent progress. The flaps should be dissected off thicker at the sides than over the rectal wall, where they should be made as thin as possible. Hemorrhage is usually easily controlled by pressure or torsion, or by the use of hot water, ligation being seldom necessary. Search is now made for any undenuded points that may remain, which are caught up with the tenaculum and cut away. After waiting for a few minutes to be certain that all hemorrhage has ceased, we are ready to proceed with the second part of the operation, which consists in the introduction of silver-wire sutures.

Before proceeding farther, I will briefly refer to a new plan of denudation, first proposed by Dr. Jenks, of Chicago (1), and which has since been endorsed and successfully practiced by Emmett, Albert Smith, Thornburn, and other eminent gynecologists. It consists in first making a small incision with fine scissors, about the centre of the lower border of the proposed raw surface. Through this both blades are insinuated, below and parallel to the mucous surface, and its separation is now performed subcutaneously by repeated snippings. Discoloration of the surface clearly marks the route the scissors have taken, but there is no external hemorrhage, except a few drops from the opening, and the process is rapid. When the whole required surface is thus separated from its attachments, and clearly indicated to the eye, the flaps are cut away on each side by scissors, with perfect regularity of outline, and there is no necessity for searching for islets of mucous tissues not separated.

I would also call attention to a modification of the usual operation sometimes practiced, in which the lateral incision from the upper end of the mesial incision is not made, the dissected flaps not being removed, but utilized by turning them forward to the vagina, bringing them in apposition and uniting them by sutures (Figs. 86, 87), thus giving increased strength and thickness to the repaired perineum. This is sometimes known as the triangular flap operation.

A variety of needles, both straight and curved, are used for the introduction of the sutures. I prefer a round curved needle. There are several kinds of perineal needles in fixed handles which have their advantage. In introducing the suture a finger is placed in the rectum to act as a guide to the needle, which should never be allowed to penetrate the rectal wall. The needle may be armed directly with the silver wire, but it is better first to place a loop of silk thread, about eight or ten inches long, in the

1) *Am. Journal of Obstetrics*, April, 1887.

needle, and to this may be attached the silver wire, either before or after the silk has been drawn through the wound.

The first suture is passed at a point about level with the margin of the anus, and passing across beneath the tissue over the rectum it emerges at a corresponding point on the opposite side, its exit being aided by counter-pressure made with a blunt hook. The remaining sutures are introduced in a similar manner, about



FIG. 86.—Lines of incision in the triangular flap operation. (Hart and Barbour.) *a*, *b*, labial incision; *c*, *b*, median line incision passing to posterior vaginal wall: *a b c*, flap to be raised.

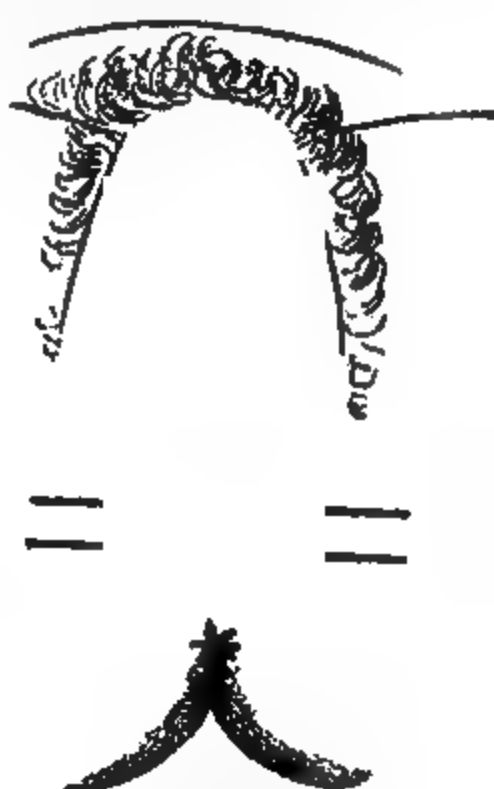


FIG. 87.—Flaps raised and sutures passed in same operation. (Hart and Barbour.)

one-third of an inch apart. They should all be embedded beneath the tissue, so that no part of them is visible in the vagina. This is not the case, however, with the last or upper suture, which runs across the orifice in plain view. On the contrary, some authorities recommend having the middle of each suture exposed, only embedding the last suture, but I prefer the former method (Fig. 88). The sutures all having been placed, their ends are gathered up and flaps carefully drawn in apposition, to see if they are adjusted properly. If so, the parts are carefully cleansed with calendula water, after which the sutures are twisted, beginning with the lower one, being careful, as each suture is tightened, to see that the flaps are accurately adjusted. Superficial sutures of catgut may then be passed whenever they are required in order to more nicely approximate the cutaneous surfaces. Perforated shot, tubing, or quills, through which the sutures are passed, are often used to

prevent the sutures cutting into the external tissues. I have never found them necessary, and agree with Dr. Ludlam that they "are of no especial advantage." After the sutures are all twisted, they are cut short and turned at right angles.

The after-treatment consists in putting the patient in bed, where she is instructed to lie quietly upon her back, especially during the first forty-eight hours. The knees are tied together

FIG. 88.—Shows surface denuded, and sutures in position.

and the urine is drawn by catheter every four or five hours. No dressings are required during the first two days. After that the vagina may be carefully syringed out twice a day with tepid calendula water, and the wound dressed with absorbent cotton saturated with calendula and glycerine, or calendula cerate may be directly applied. This may be kept up until the sutures are removed, which should be done on the eighth or ninth day, unless menstruation has intervened, in which case they may be left a few days longer. Some operators always leave the upper suture until the tenth or twelfth day. The diet should be nourishing, but mild and easily digested, consisting mostly of soups, broths, gruels, and the like. The bowels should, if necessary, be kept loose by means of appropriate mineral waters. Cathartics should not be administered. If union has taken place, the patient can sit up in about two weeks from the date of the operation, and assume her ordinary duties the week after, but should for some time be careful not unnecessarily to strain or stretch the parts.

2. ELYTRORRHAPHY.—This operation consists in making a triangular raw surface on the vaginal wall, as shown in Fig. 89, and bringing the opposite sides together by means of sutures, thus reducing the size of the vagina. In cystocele the operation must be made upon the anterior vaginal wall, and in prolapsus of the posterior vaginal wall, and in rectocele and enterocele, upon the posterior vaginal wall.

Sims' method of operating consists in first putting the patient under the influence of an anæsthetic, placing her upon a table in the semi-prone position, and introducing a Sims' speculum. A curved sound, with forked tenaculum points, is then fixed in the cervix uteri and made to cause a fold in the anterior vaginal wall.

FIG. 89.—To show raw surface as made by Sims (*Marion Sims*).

These folds are then brought together by tenacula in order to ascertain where the denudation is to be made. A tenaculum is then introduced into the mucous membrane at a point near the urethra, and the surface pared by means of curved scissors along the line previously decided upon, to a point opposite the cervix. The same course is followed in the other fold, after which, the sound having been removed and the cervix pulled down by a small tenaculum, two transverse denudations are made, one from each upper point of the previous denudation, running inward until they nearly reach each other, as shown in Fig. 89. Dr. Emmett found that this method left a pouch which was sometimes entered by the cervix, and he improved the operation by carrying the transverse

denudation entirely across from one upper arm of the triangle to the other (Fig. 90). Silver sutures are then placed in the same manner as in vesico-vaginal fistula, beginning at the base of the triangle and continuing upward. The patient is then placed in bed and kept quiet for two or three weeks, the sutures being carefully removed in about twelve or fourteen days. Hegar holds (1) that union does not often take place uniformly at the broad

FIG. 90.—Emmett's operation of Elytrorrhaphy.

end. He says that both Sims and Emmett "believed that this operation alone would cure even considerable vaginal and uterine prolapse, but this is impossible."

Hegar recommends the simple excision of a uniform longitudinal fold, attaching no importance to the special shape of the denudation. He says that "in this way the operation may be performed very rapidly and almost without hemorrhage." A longitudinal fold is first formed in the anterior vaginal wall by means of two or three volsellas. The upper one is placed about one-third of an inch from the anterior lip, and the lower one about three-fifths of an inch from the meatus. By pulling on these instruments the fold is raised, and a clamp is applied in a longitudinal direction, nearer to the ridge than to the base of the fold. Sutures are then applied at a little distance below the clamp, one-third of an inch apart. The fold is then cut away between the clamp and

1) Handbook of Gen. and Op. Gyn. W. Wood & Co., p. 208.

the sutures, and the latter tied, accurate closure of the wound being accomplished by means of superficial sutures. After coaptation the wound is pressed together from the sides in order to ascertain whether any blood has been extravasated. If this has occurred in any part and blood escapes between the sutures, the part is enclosed in a deep ligature. Great care should be taken that the wall of the bladder be not included in the fold, and excised. If on account of thinness of the vaginal walls this cannot be avoided, it is better to adopt Sims' method of operation. I think Hegar's method is especially useful in operations upon the posterior wall, though here it may open Douglas' cul-de-sac, which is to be avoided if possible.

Thomas' method of operation offers some advantages, and is the one I prefer in most cases. It may be performed upon either one, or upon both vaginal walls, in two successive operations, and with the uterus in a state of complete prolapse, or after it has been replaced, a Sims' speculum being used. Dr. Thomas describes (1) the operation as applied to the anterior wall while the uterus is in a state of prolapse.

"The patient having been etherized and placed upon her back, a portion of the vagina, about half an inch to one side of the cervix, is caught up with the tenaculum, and a piece the size of a buckshot cut out with scissors. Through this opening a grooved director is passed directly across the anterior face of the uterus, and between it and the vagina, to a point on the other side, corresponding to that which marked the commencement of the operation. Upon this director the vagina is cut transversely. Entering the director now at the middle point of the transverse cut, it is gradually insinuated through the loose areolar tissue between the bladder and the vagina, until it reaches a point near the meatus, when it is withdrawn. This insertion I have found quite easy. An instrument of steel (Fig. 91), six inches long, shaped like an

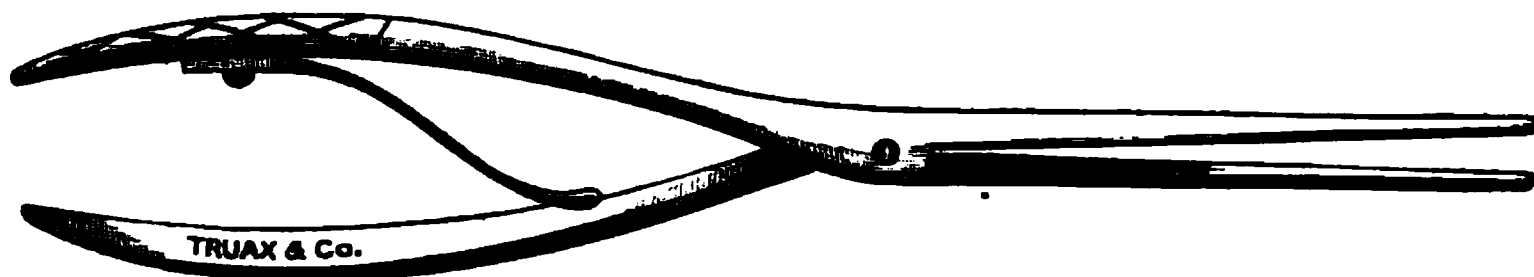


FIG. 91.—Thomas' Dilating forceps for separating the bladder and vagina.

ordinary glove-stretcher, with limbs equal in size to a No. 9 steel sound and three inches long, is then passed down the channel made by the director. When the lowest point of this is reached, the blades are thrown apart by approximation of the handles and a subcutaneous tearing is accomplished, so as to separate the blad-

1) Op. Cit., p. 854.

der from the vagina over a triangular space, the apex of which is at the urethra and the base at the cervix. If the tissue does not yield readily, the finger is made to aid the stretcher, and the separation is readily accomplished. (The stretcher may be dispensed with and the tearing accomplished by a sound.)

“A clamp three inches long, with blades half an inch wide,



FIG. 92.—Thomas' Vaginal Clamp with teeth for compressing wound in vagina.

and having two rows of teeth, a quarter of an inch in length, fixed upon their inner faces, is then applied.

“This clamp, the limbs of which are united by a hinge, admitting a separation of a quarter of an inch at one extremity, is united by a screw at the other, which can be graduated as to the degree of compression which it accomplishes. The separated vagina is then brought together by a suture at the cervix, which passes through it at the point where the operation was commenced. This being tightened, the free portion of the vagina is folded so as to protrude as two flaps, turned face to face. The clamp is then adjusted, with the hinge toward the cervix and the screw toward the urethra, and tightened by the screw. Then the portion of the vagina hanging out of the clamp is cut off near the edge of the clamp, interrupted silver sutures are passed so as to secure the lips of the wound, and, the clamp being still in place, the uterus is replaced, a procedure involving no difficulty. The vagina is then filled with a tampon of cotton wet with solution of alum and carbolic acid. This is applied quite firmly, so as to control any hemorrhage which may occur from the transverse incision near the cervix, or from the torn recto-vaginal septum. In twenty-four hours the tampon should be removed, in forty-eight the clamp should be taken off, and in eight or nine days the sutures withdrawn.

“Usually both walls require operation, an interval of two or three weeks intervening between the procedures. Between the operation of the vaginal wall, after restoration of the uterus to its place and that where the uterus is prolapsed, there is this difference: In the first case, the uterus being in the pelvis at the time of operation, the transverse incision would prove difficult of accomplishment, and should not be made. The opening of the vaginal wall should be made just above the fourchette, and through this

the stretcher introduced. After separation of the vagina from the rectum, the clamp is applied and the overlapping vagina cut off."

The greatest danger is from hemorrhage, but this is controlled by means of the clamp.

Dr. Thomas very justly remarks that "It is never safe to promise a good and prominent result from any of the operations of elytrorrhaphy. If in a case of enlargement of the cervix, relaxation of the vagina, and complete distension or rupture of the perineum, the patient is willing to submit to three operations, amputation of the cervix, elytrorrhaphy upon anterior wall, and closure of the perineum, cure will often be complete and permanent. This is a trying ordeal, both mentally and physically; nevertheless, most women affected by prolapsus in the third degree would unhesitatingly accept one of even greater severity with the prospect of cure."

3. EPISIORRHAPHY.—This operation consists in freshening the edges of the labia majora and uniting them by silver sutures, thus partially closing the vulvar orifice and preventing eversion of the vaginal walls and hindering the mechanism of descent. Either the knife or scissors may be used for the denudation, care being taken to avoid all excavation of tissue. The sutures are introduced about one-third of an inch apart, sufficiently deep to completely encircle the denuded surfaces. They are to be removed on the tenth day.

CHAPTER XIII.

VAGINAL FISTULA.

DEFINITION.—A solution of continuity in the vaginal walls, by which a communication is established between the vagina and adjacent organs and tissues.

VARIETIES.—There are several varieties of vaginal fistulæ, both urinary and fecal, according to the location of the fistulous opening, but for practical purposes it is only necessary to describe the chief form of each, under which heads the other varieties may be readily included. I shall, therefore, refer to but two varieties, viz., (1) vesico-vaginal fistula, where the communication is with the bladder, and (2) recto-vaginal fistula, where the communication is with the rectum. The accompanying diagram (Fig. 93) shows

FIG. 93.—Diagram showing the principal varieties of vaginal fistulæ. 1. The fundus uteri; 2. The rectum; 3. A utero-vesical fistula; 4. A vesico-vaginal fistula; 5. A recto-vaginal fistula; 6. The vagina; 7. A urethro-vaginal fistula; 8. The urethra.

the principal varieties of vaginal fistulæ. A fistulous opening between the intestines, above the rectum and vagina, is known as entero-vaginal fistula, but it is of rare occurrence, and seldom demands operative interference.

1.—VESICO-VAGINAL FISTULA.

ETIOLOGY AND PATHOLOGY.—A vesico-vaginal fistula may be situated at any point along the vesical tract from the urethra to the fundus of the bladder, and may be so small as to almost defy detection, or it may involve the entire posterior wall of the bladder. When recent they are of larger size than later, since they become contracted by the formation of cicatricial tissue. “The margins of the fistulæ are at first irregular, swollen and ulcerated, but after a time they become thin and firm, through cicatrization.”

“In cases of fistulæ which allow a free flow of urine, the bladder becomes permanently contracted and its walls thickened; in large fistulæ, the mucous membrane protrudes through the opening, and is easily recognized from its deep red color. The normal relations of the openings of the uterus to that of the urethra and to the cervix uteri render them liable to be involved in an extensive fistula, or even in a small one lying to one side of the middle line. Sometimes we can recognize their openings on the exposed vesical mucous membrane by means of the urine trickling from the orifices. Should the urine be blood-stained, it can be distinguished from blood by its acrid reaction to test paper. The urethra, through disuse, becomes contracted; sometimes a complete atresia is present and seriously complicates treatment, and a portion of the canal may even be completely destroyed by pressure. The vagina is often contracted by cicatricial tissue, originating from injuries received during labor. The margins of the fistula are often drawn apart, and sometimes fixed down to the bone by these cicatrices; this interferes with their closure. Contraction of the vagina below the fistula sometimes makes it impossible to ascertain the condition of the upper part, and whether the uterus communicates with the fistulous tract.” (1)

Vesico-vaginal fistula is almost invariably caused by injuries received during parturition. In protracted labor the presenting head may so press against the soft parts that their nourishment is cut off and gangrene follows, resulting in a loss of substance by sloughing, leaving a fistulous communication between the vagina and bladder. Schröder says (2): “The long duration of the pressure is especially important, since a momentary squeezing of the soft parts, even though very severe, is not apt to produce mortification, while a pressure which is very long continued does not need to be so very great to produce the injurious effects.

“A very severe pressure hardly ever takes place before the waters have escaped, for until then the force acting directly upon the child is very slight. Hence, labors which are very long pro-

1) Hart and Barbour. *Op. Cit.*, p. 586.

2) Ziemssen, Vol. X, p. 514.

tracted after rupture of the bag of waters, the head presenting, rank first in importance in the causation of fistulæ."

A fistula may also be produced by the careless or unskillful use of forceps or other obstetrical instruments, but it is most likely that in many instances where such is supposed to be the cause, the real cause, the prolonged and violent pressure above mentioned, has been lost sight of.

Direct injury may produce a fistula, as, for example, falling on a pointed object which penetrates the vagina.

Fistula has also resulted from inflammation and ulceration caused by badly-fitting pessaries.

Carcinoma is a frequent cause of fistula, but such cases being incurable they will not be considered here.

SYMPTOMS.—The involuntary escape of urine through the vagina is the chief symptom. According to the size of the fistulous opening, its location, and the changes in position of the patient, do we have variations in the flow of urine, being greater under some circumstances than others. At times all the urine may escape through the vagina, while at others a portion of it is discharged through the normal outlet. In small fistula the urine is mostly passed normally, but at the same time a small quantity continually trickles from the vagina down the thighs.

Secondary symptoms often result from the irritation produced by the continued passage of urine over the parts. Vaginitis, vulvitis, pruritus, excoriations, ulcerations and vesicular eruptions occur, while at the same time the perpetual moisture of the genitals and thighs and the urinous odor accompanying it excludes the patient from society and renders her life miserable, so that the general health becomes impaired, and hysteria, chlorosis and even graver disorders become manifest.

DIAGNOSIS.—Usually the diagnosis is easily established, even before an examination, as constant escape of urine rarely occurs from other causes. If the fistula be large, it is readily discovered by passing a sound into the bladder, while the index finger placed in the vagina feels the sound through the opening. Sims' speculum will reveal the location and extent of the fistula. If the fistula be small, it is better, after introducing a Sims' speculum, to inject the bladder with milk, or with water colored with permanganate of potash or some other substance, and as the bladder distends watch the anterior wall for the point at which the fluid escapes. This being discovered, the finger and sound will readily establish the extent of the opening.

PROGNOSIS.—As a rule the prognosis is favorable. Small and recent fistulæ sometimes heal spontaneously during the puerperium. Large ones require an operation, which, though not at all formid-

able in character, requires considerable skill and experience on the part of the operator. Sometimes it becomes necessary to repeat the operation two or three times before it is successful. Those cases in which the margins of the fistula contain considerable cicatricial tissue and are bound down by adhesions are the most difficult to cure.

TREATMENT.—Recent cases of vesico-vaginal fistula will sometimes heal spontaneously, but if discovered within a few days after parturition, we should attempt to aid nature in her efforts at repair. This may be done by introducing a catheter into the bladder and leaving it there, that the urine may pass off through the natural channel, and syringing the vagina out frequently with warm water. It is said that the abdominal decubitus also aids in the repair. Tampons are sometimes used, but by stretching the anterior vaginal wall they are liable to do more harm than good.

Very small fistulæ are sometimes closed by cauterization, either with nitrate of silver or the red-hot wire, but this method cannot be depended upon in fistulæ of any size. Failure by this method leaves cicatricial margins, and thus renders subsequent operative measures more difficult and less successful.

In all large fistulæ, and in most small ones, surgical measures are required. The operation for closing a fistula consists in freshening the edges of the wound and uniting them by means of silver wire sutures.

It is important that the operation be preceded by proper preparatory treatment. For several days, or even weeks, beforehand, the patient should receive daily vaginal injections of hot water, followed each time by a free inunction of the parts about the fistula and the outlet of the vagina with vaseline, to protect them, as far as possible, from the irritating effects of the urine.

If the edges of the wound become incrustated with phosphatic deposits, Dr. Emmett recommends that these be carefully removed, as far as possible, by means of a soft sponge, and the remaining raw surface brushed over with a weak solution of nitrate of silver. When there are cicatricial bands drawing the margin of the fistula apart, or contracting the field of vision, these should be divided with a pair of scissors, and a glass vaginal plug introduced and kept in place for a week or ten days, or the vagina may be kept distended by means of an air-bag.

For the operation five assistants are required, one to take charge of the anæsthetic, one to hold the speculum, two to hold the edges and retract the labia, and another to hand instruments, sponges, etc. It is better to use an anæsthetic to keep the patient quiet and allow the operator more freedom in exposing the parts, though the actual pain of the operation does not require it.

The operation is composed of six successive steps, each of which should be borne in mind as essential to success: (1) complete exposure of the fistula; (2) thorough freshening of the edges; (3) introduction of the sutures; (4) carefully approximating the edges and securing the sutures; (5) introduction of a catheter into the bladder; (6) careful removal of the sutures at the proper time.

1. EXPOSURE OF THE FISTULA.—The patient having been anesthetized is placed in the lithotomy position, and the legs being strongly flexed are held by two assistants, who also hold back the labia with retractors, a third assistant retracting the posterior wall of the vagina as far as possible with a Sims' speculum. If the edges of the fistula do not sufficiently protrude, or there is a tendency for the mucous membrane of the bladder to prolapse through the fistula, it may be necessary to overcome these difficulties by introducing a catheter or sound into the bladder. Some operators prefer the semi-prone position, while Bozeman recommends the genu-pectoral position, and has invented an apparatus (Fig. 94) by which the patient can be secured to the table. I pre-

FIG. 94.—Bozeman's position for vesico-vaginal fistulæ.

fer the lithotomy position, but if in any case a better exposure of the fistula could be obtained I should not hesitate to adopt either of the other positions mentioned. Fig. 94½ represents an improved Gynapod devised by Dr. T. G. Comstock, of St. Louis, and which has been received with favor by eminent gynecologists. It consists of a set of adjustable leg-braces that support the limbs of the patient comfortably when she is lying in the dorsal position. By their use the whole weight of the thighs and legs are lifted upward from the pelvis, and, by a simple device, a fixed perineal retractor is applied, so that the surgeon can conveniently sit before

the patient and operate with the greatest ease to himself and with comparatively little inconvenience to the patient, and at the same time he can dispense with assistants other than the nurse and the one who administers the anæsthetic. This apparatus is especially

FIG. 94.

useful in all minor operations, including those for vesico-vaginal fistula, cystocele, rectocele, lacerated cervix, etc.

2. **FRESHENING THE EDGES.**—The lower border of the fistula is seized with a tenaculum (Fig. 95) or long finely-toothed



FIG. 95.—Tenacula.

forceps, and a strip of vaginal mucous membrane, one-fourth to one-sixth of an inch wide, is carefully removed about the edge of the orifice, leaving the vesical mucous membrane intact, but paring close up to it (Fig. 96). This freshening should extend well beyond the angles of the wound, in order to provide against the possibility of a small fistula remaining at these points. When the septum is very thin it may be difficult to obtain a sufficient extent of raw surface, and it may be necessary very carefully to split the

layers between the vagina and bladder, making the non-mucous surface of each to play a part in the new cicatrix.

For this purpose we may use either long-handled curved scis-

FIG. 96.—Method of paring the edges of a fistula (*Simon*).

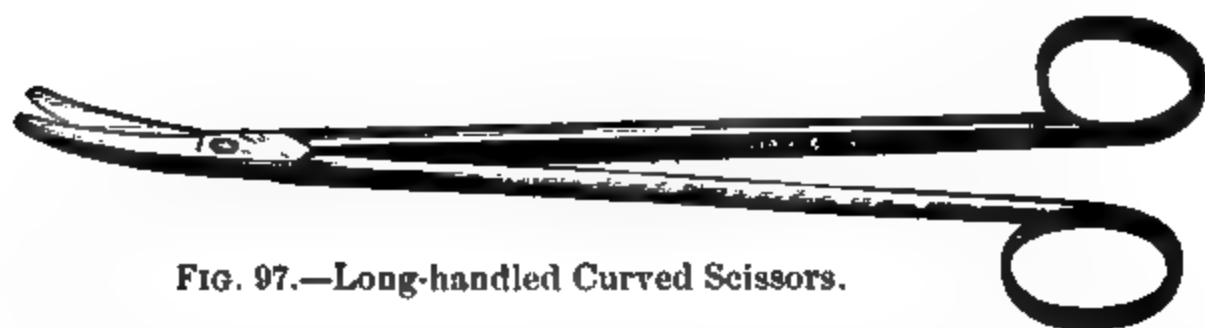


FIG. 97.—Long-handled Curved Scissors.

sors (Fig. 97), Emmett's double-curved scissors (Fig. 98), or long-handled small bistouries, straight, or set at an angle (Fig. 99). I prefer Emmett's curved scissors, but if for any reason a knife

can be more advantageously used, I would recommend Sims' rotary knife (Fig. 100), which can be placed and held firmly at any desired angle. The reason for avoiding the vesical mucous mem-



FIG. 98.—Emmett's Curved Scissors.



FIG. 98.—Emmett's Double Curved Scissors.

brane is on account of the danger of after-hemorrhage into the bladder. If it has been cut and shows signs of bleeding freely, the bleeding edge should be seized with a pair of artery forceps,

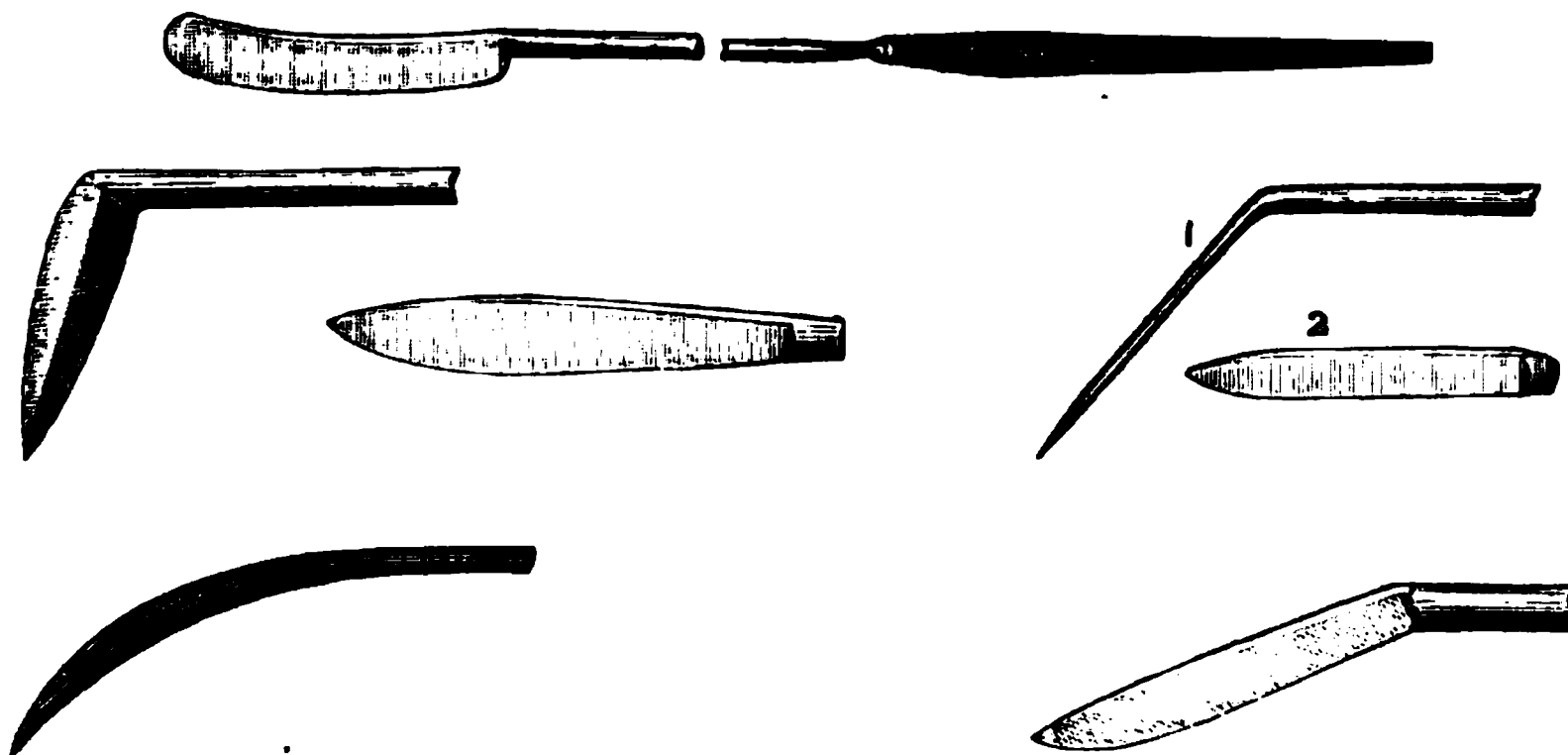


FIG. 99.—Knives for paring a fistula.

or, if that fails, a catgut ligature may be passed through the vaginal wall into the bladder and out again at a very short distance from the raw edge, so as to encircle the bleeding vessel. Emmett says such ligatures must never be placed more than half an inch

from the middle line, to avoid involving the ureters. Usually any hemorrhage occurring during the operation may be checked by the hot douche.

3. INTRODUCTION OF THE SUTURES.—The freshened edges are now to be brought in accurate contact by means of silver wire



FIG. 100.—Sims' Rotary Knife.

sutures. For the introduction of the sutures I prefer laterally curved needles on fixed handles (Fig. 101), but an ordinary curved needle may be used, or hollow needles (Fig. 102). Emmett prefers to use short, round needles, from one-half to three-quarters

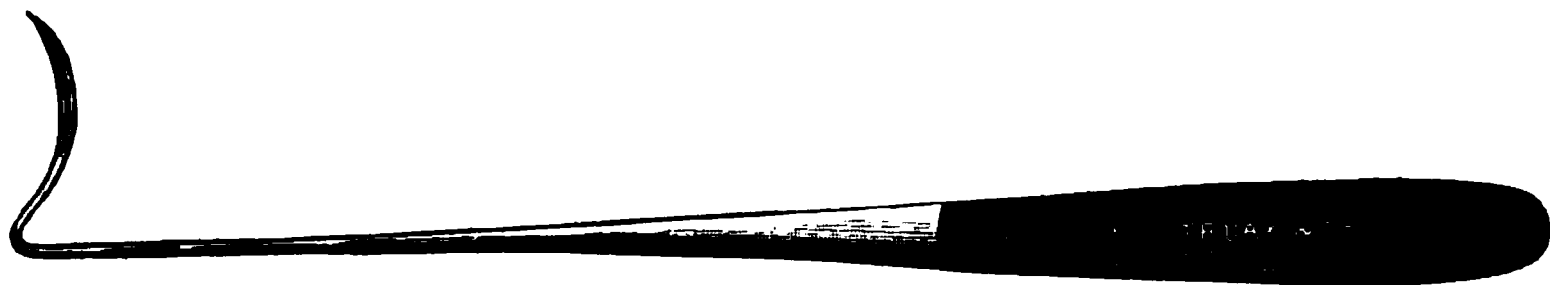


FIG. 101.—Laterally Curved Needles on Fixed Handles.

of an inch in length, slightly curved at the point, which are introduced by means of a needle-holder, carrying with them a loop of silk. This loop is used to draw back through both sides of the

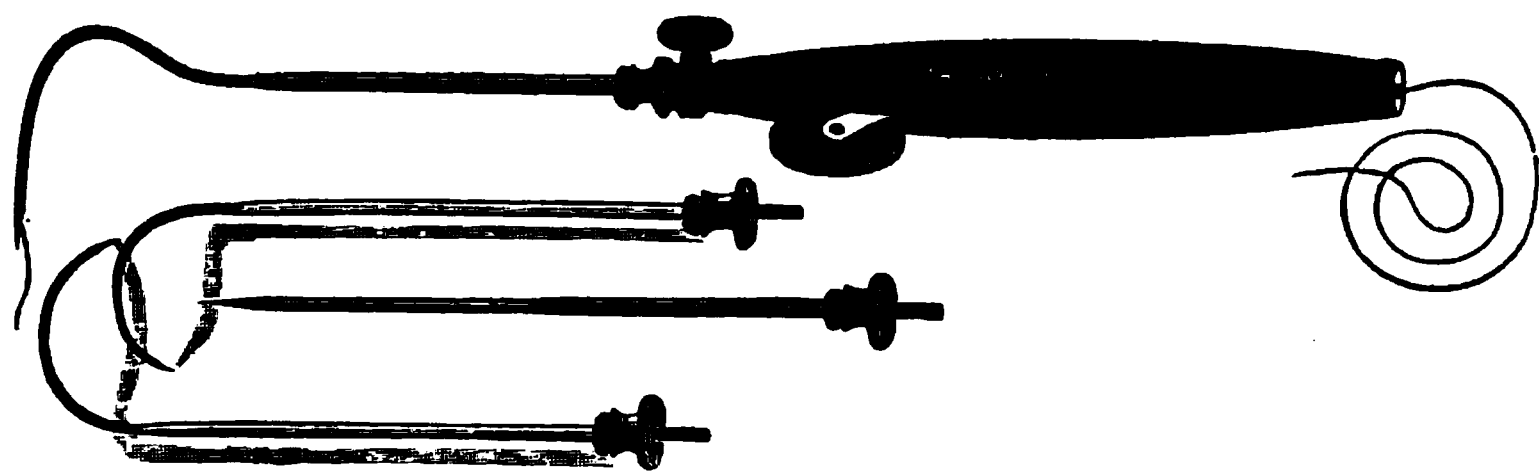


FIG. 102.—Hollow or Tubular Needles.

fistula the end of a silver wire hooked around it. The space between the stitches should be about one-sixth of an inch. To pre-



FIG. 103.—Bozeman's Fork.

vent the sutures from cutting the vaginal mucous membrane as they are drawn through, the forks may be used (Fig. 103), and if

the needle does not pass readily counter-pressure may be made with the blunt hook (Figs. 104, 105).

4. APPROXIMATION OF EDGES AND SECURING OF SUTURES.—All the sutures having been passed and the edges of the wound



FIG. 104.—Blunt Hook.

carefully approximated, the sutures are twisted by the aid of Sims' wire adjuster (Figs. 106, 107) and Emmett's twisting forceps (Figs. 108, 109). The ends of the sutures are then cut off about half an inch from the wound and bent at a right angle. The bladder should then be carefully syringed out with warm water to remove any blood that may have accumulated. Emmett recommends that the bladder be washed out before the sutures are

FIG. 105.—Passing the needle. (Wieland and Dubrisay.)

twisted, the water and coagula, if any, being allowed to escape at the wound.

5. INTRODUCTION OF A CATHETER.—This is important in order that the bladder may be continually drained through the proper channel while the wound is healing. Sims' sigmoid catheter (Fig. 110) is by far the best instrument to use. It is best to have two catheters, so that several times a day they can be changed and carefully cleansed. A small china dish with a broad bottom may be used as a receptacle for the urine.

The catheter should be allowed to remain for a few days after the sutures have been removed.

6. REMOVAL OF THE SUTURES.—This should be done about the tenth day. The twisted end of each suture is seized by a pair of forceps and cautiously drawn down until the edge of the loop

is visible, which is then snipped off with a pair of scissors and a little further traction with the forceps withdraws the suture.

When the vesico-vaginal fistula is located close to the cervix, or the tear implicates the cervix, as it sometimes does, the anterior



FIG. 106.—Twisting the sutures.

FIG. 107.—Sims' Wire Adjuster.

FIG. 108.—Emmett's Twisting Forceps.

lip may be used to close the rent, its surface, as well as the margins of the tear, being freshened, and the two united by sutures. (Fig. 111).

In case the fistula is vesico-uterine, the cervix is divided up to the fistula, the edges of the fistula pared, and otherwise treated as a vesico-vaginal fistula. If the fistula is located in the urethra, it is more accessible to treatment, but the tissues are very thin. For this reason Emmett recommends freshening a portion of the vaginal tissue also, the fistula being kept well in view during the operation by retaining a full sized gum-catheter in the urethra.

CLOSURE OF THE VAGINA.

In those cases in which there is such an extensive destruction of tissue that the operation above described is impracticable, or in

those in which the operation has been performed several times without success, another method of treatment is necessary, and in cases of uterine fistula, which are inaccessible to treatment, the only means of relief consists in a transverse closure of the vagina below the fistulous opening. By this means the vagina and blad-

FIG. 109.—The fistula with edge pared and the sutures placed.

der become a common receptacle for urine and menstrual blood, both of which are discharged through the urethra.

This operation was first performed by Simon, who termed it "kolpokleisis," which signifies *cross-obliteration*. It consists in a



FIG. 110.—Sims' Sigmoid Catheter.

freshening of the anterior and posterior vaginal walls at corresponding points, as high as possible, so as to be below the fistula, and uniting these surfaces by silver wire sutures (Fig. 112).

Of course it should be remembered that this method of treat-

ment destroys all possibility of conception, though usually it does not entirely preclude the sexual act. In bad cases of fistula these facts are scarcely to be considered, though the patient should be thoroughly advised on the subject before the operation is performed.

2. RECTO-VAGINAL FISTULA.

ETIOLOGY.—The causes are very similar to those of vesico-vaginal fistula, injury during labor being the most frequent. In such instances, however, prolonged pressure is rarely the cause, the origin of a recto-vaginal fistula being most often in lacerations

FIG. 111.—Sutures passed through anterior lip of cervix so as to close in transversely a fistula of the anterior fornix (*H. and K.*).

of the posterior vaginal wall. Frequently a perineal rupture involving the recto-vaginal septum subsequently heals in part primarily, or from operative interference, leaving a portion or all of the recto-vaginal septum open.

Rectal fistula may also, in rare instances, result from the use of instruments during delivery, from badly-fitting pessaries, and from ulcerations and abscesses in the posterior vaginal wall. A retention of hardened feces from stricture of the rectum, or from other causes, may result in ulceration which extends through the vaginal wall.

SYMPTOMS.—The chief symptom is the escape of offensive gas and fecal matter through the vagina, the amount discharged de-

pending upon the size and location of the fistula. On account of this discharge the patient suffers great inconvenience and distress, both mental and physical, which tends to destroy the health and render the patient's life miserable.

DIAGNOSIS.—If the fistula is of any size it may usually be detected with the finger, or by ocular inspection, the anterior

FIG. 112.—SIMON'S OPERATION FOR KOLPOELEISIS. The patient is in the lithotomy posture; the sound has been passed through the urethra and is seen in the upper portion of the vagina; the perineum is drawn back with the speculum and the labia majora with spatulæ. A band-like piece of tissue has been removed from both the vaginal walls above the ostium: the raw surface is left unshaded in the figure. The vaginal mucous membrane is held tense by four pairs of forceps outside the raw surface, the shaded area within the latter is the upper third of the vagina. An end of the last suture has been passed through one raw surface, the second end is being carried through the other raw surface (*H. and K.*)

vaginal wall being raised by a Sims' speculum, and the lateral walls retracted. If the fistula is too small to be discovered in this manner, a colored fluid may be injected into the rectum, and the

posterior vaginal wall carefully watched in order to detect the point at which the fluid escapes into the vagina.

PROGNOSIS.—Recent recto-vaginal fistulæ are more apt to heal spontaneously than a vesico-vaginal fistula, as they are not subject to the irritating influences of a urinary discharge. In a majority of instances, however, an operation is required, the prognosis as to cure being about the same as in the vesico-vaginal variety.

TREATMENT.—This is practically the same as in the vesico-vaginal fistula. The rectum having been thoroughly emptied by an enema, the patient is placed in the lithotomy position and a Sims' speculum introduced anteriorly, the lateral walls being separated by retractors, a large bougie is then introduced into the rectum, by which the fistula is kept prominent. The edges are freshened and the sutures inserted in the same manner as in vesico-vaginal fistula. Simon recommends, in the more difficult cases, to unite the edges by sutures introduced within the rectum. In order to insert these rectal sutures it is necessary to previously stretch and paralyze the rectum, and then to introduce a Sims' speculum within it. In such cases a firm catgut suture should be used instead of silver wire, in order to avoid the pain and annoyance of their removal.

Vaginal injections of warm calendula water should be used daily, and the bowels kept in a lax condition by the use of proper diet, and even by daily enemas, if necessary. It is a mistake to lock up the bowels by the use of opiates, as the hardened feces which must pass when the bowels are reopened may destroy the good results of the operation.

CHAPTER XIV.

DISEASES OF THE UTERUS.

MALFORMATIONS. CONGENITAL ATROPHY. HYPERTROPHY OF THE CERVIX.

MALFORMATIONS.

By this term is meant those conditions of arrested development and arrested growth of the uterus which, while they are, as a rule, not amenable to treatment, are nevertheless of great importance to the student of gynecology. The chief varieties of these malformations will be briefly mentioned, the student being referred to more exhaustive treatises for their full consideration.

To understand these conditions the student must remember that the entire genital tract in the female is developed out of Müller's ducts, which originally consist of two parallel tubes which gradually coalesce during the first weeks of embryonic life to form the vagina and uterus, the upper portion remaining separate and constituting the Fallopian tubes. If one or both of these ducts be absent, or fail to coalesce, or become retarded in development in any manner, the result is a corresponding defect or arrest in development of the genital canal.

According to Arnold the period of development of the uterus is twenty weeks, while the period of growth extends to the twentieth year, therefore all cases of malformation which originate after the twentieth week of embryonic life are instances of arrest in growth, rather than in development.

Malformations of the uterus may, therefore, be separated into two divisions: (1) Those which are the result of an arrest in development, and (2) those which are the result of an arrest in growth. In the first group are,

1. Absence of the uterus ;
2. Rudimentary uterus ;
3. Uterus duplex separatus ;
4. Uterus unicornis ;
5. Uterus bicornis ;
6. Uterus septus ;
7. Uterus subseptus.

In the second group are,

1. Uterus foetalis ;
2. Uterus infantilis ;
3. Congenital atrophy.

In addition to these varieties we may also have an excessive

development, or an abnormal size of the uterus, which is congenital in its nature. Such are the cases of precocious development which are recorded, and which are usually also accompanied by a premature development of the breasts, external genitals, and hair, and by precocious menstruation.

1. **ABSENCE OF THE UTERUS.**—An entire absence of the uterus is extremely rare. It is probable that in most cases so reported there are really traces of a rudimentary structure which was originally destined to become a uterus. In such cases there is either an absence or a rudimentary development of the vagina, Fallopian tubes and ovaries.

2. **RUDIMENTARY UTERUS.**—In some instances only a globular, solid, fibrous mass about the size of a hazelnut is found; sometimes there is to be found only a band of muscular fibre and connective tissue on the posterior wall of the bladder; other cases show a solid mass shaped like the body of the uterus, and possessing rudimentary horns and round ligaments; in others there is a hollow membranous body shaped like a normal uterus. The most frequent form of rudimentary uterus, however, is that known as the *uterus bipartitus*, where we find lying between the bladder and rectum a body which resembles the normal uterus in shape, and which is composed of connective tissue interspersed with muscular fibres, and possessing rudimentary horns, which may be either solid or hollow. There may be more or less of a neck, which is inserted into the roof of the vagina. In such cases the ovaries and external genitals are usually somewhat rudimentary, but they may be well developed, and normal menstruation and ovulation may occur.

3. **UTERUS DUPLEX SEPARATUS.**—Here Müller's ducts remain separate, and do not coalesce to form the uterus, which results in two separate uteri, each one representing one-half of the normal uterus. The condition is very rare, and is usually found in foetal monstrosities.

4. **UTERUS UNICORNIS.**—In this type the uterus has but one horn, though the other horn may exist in a rudimentary state. The body of the organ is disproportionately long, and curves to one side, ending in a point from which start a Fallopian tube, an ovarian ligament and a round ligament. The intra-vaginal portion is generally small, and the vagina narrow. The rudimentary horn of the other side may be either solid or hollow, and lie close to the uterus, or greatly diverge from it. It has a Fallopian tube and ovary, which are sometimes fully developed, it being difficult to establish the point at which the rudimentary uterus ends and the tube begins. Pregnancy may occur in a one-horned uterus, and terminate favorably. If, however, the foetus becomes estab-

lished in the rudimentary horn it will cause rupture, and there will follow the usual symptoms following such an accident in tubal pregnancy.

5. **UTERUS BICORNIS.**—This is the double uterus, both horns becoming fully developed, but remaining separate, each side representing a separate cavity, which may open by one orifice into one vagina, or, the separation may extend to the vulva, giving two uterine orifices and two distinct vaginæ. The two bodies may lie contiguous to each other, the double organ showing only a slight depression at the fundus, or they may widely diverge at the point of union, which may be at the cervix, or higher up.

6. **UTERUS SEPTUS.**—In this variety of malformation the external appearance of the uterus is normal, but it is divided in-

FIG. 118.—Uterus with double cavity, and slight deviation of form.

ternally into two halves by a longitudinal septum which extends to the external os; a septum may also divide the vagina into two parts.

7. **UTERUS SUBSEPTUS.**—This condition is the same as in *uterus septus*, except that the septum is incomplete, reaching only from the external to the internal os, or but a short distance into the cavity. Menstruation and ovulation occur normally in a double uterus, and pregnancy may take place, a foetus fully developing in either one or both halves.

The malformations which are the result of an arrested growth are :

1. UTERUS FŒTALIS.—Here the uterus is normally formed, but during the latter half of gestation its growth is arrested.

2. UTERUS INFANTALIS.—Here the arrest of growth takes place after birth, but since the uterus remains very slightly changed from birth until puberty, there is practically no difference between the *uterus fœtalis* and the *uterus infantalis*. The uterus is, of course, smaller than normal, but the chief peculiarity lies in the disproportionate length of the cervix as compared with that of the body, being two or three times as long. The walls are thin

FIG. 114.—Uterus septus bilocularis; double uterus, with single vagina, seen from the front; left walls more developed in consequence of pregnancy. (Cruveilhier.)

and the cavity small. Menstruation usually does not occur, and conception is impossible, though copulation may take place with entire satisfaction.

3. CONGENITAL ATROPHY.—This differs from *uterus infantalis* in that the shape of the uterus is normal, the cervix and body being proportionate, but the whole organ is small and its walls thin and flabby. This may occur in girls who are perfectly healthy and otherwise well developed, but is usually present in chlorotic or scrofulous subjects, and, not infrequently, it is associated with hysteria and epilepsy. There is usually amenorrhea,

but sometimes scanty menstruation, associated with pain in the back and abdomen, and various nervous and mental phenomena.

DIAGNOSIS.—The diagnosis of uterine malformations during life is often impossible. The symptoms are usually only those of impairment of function, such as may arise from other causes. The

FIG. 115.—Double uterus and vagina from a girl aged nineteen (Ersenmann).
a, double vaginal orifice with double hymen; *b*, meatus urethræ, *c*, clitoris; *d*, urethra; *e, e*, the double vagina; *f, f*, uterine orifices; *g, g*, cervical portions; *h, h*, bodies and cornua; *i, i*, ovaries; *k, k*, Fallopian tubes; *l, l*, round ligaments; *m, m*, broad ligaments. (Courty.)

appearance of the patient and the development of the breasts and external genitals may not indicate any departure from normal. Sometimes the use of the sound, with subjoined careful bimanual or rectal examination, will establish the deformity, or the smallness of the uterus, whichever those may be. In all instances the use of the sound is attended with more or less danger. The walls

of the uterus are in some malformations as thin as paper, and slight pressure with the sound may penetrate them and cause fatal inflammation.

TREATMENT.—There is but little that can be done for these malformations in the way of treatment. The uterus foetalis and infantalis, and the congenitally atrophied uterus, may often be improved by the careful use of electricity, the positive pole being applied over the mons veneris, and the negative pole attached to a uterine sound being inserted into the uterus. This treatment should be repeated at least twice a week, and probably for several months. At the same time the patient should be given a systematic course of bathing, diet and exercise, having in view the development and strengthening of the entire physical system. The subjective symptoms should be combated with the indicated remedy.

When malformations give rise to the retention of menstrual blood or the products of conception, surgical interference may be required, which will be elsewhere considered.

ATROPHY OF THE UTERUS ; SUPERINVOLUTION.—This term is used to signify not a congenital defect, but a condition that has been acquired after puberty. It may involve the whole uterus, or simply the cervix or vaginal portion.

Normal atrophy of the uterus occurs after the climacteric, and should atrophy occur at any time after puberty and before the climacteric, *i. e.*, during the period of ovarian activity, it is an abnormal condition, and requires treatment.

ETIOLOGY.—Atrophy of the uterus may be caused by the pressure of an ovarian or fibroid tumor, or follow a long-lasting chronic catarrh ; it may also occur as a consequence of certain blood states, such as phthisis, scrofula and chlorosis, though in chlorosis it is probable that the atrophy is generally congenital, and is not secondary to the blood states. Atrophy also results from a superinvolution after childbirth, there being in such cases a failure in the appearance of the menstrual flow after childbirth and lactation. As has been noted, atrophy of the uterus occurs as a normal condition after the climacteric, and in estimating the causes of this condition it should be remembered that the menopause may occur as early as the thirtieth year, of which I have seen one case, and normal atrophy follow.

PATHOLOGY.—In cases of superinvolution the uterus is reduced in size to nearly one-half its normal depth. The walls are generally thin, though sometimes they are thick. But it must be borne in mind that they are generally soft and pulpy, so that they may be easily perforated by the sound if force is used. The os is patulous, or may be hard and contracted. In atrophy from other causes the uterus is usually very thin and flabby, the exter-

nal os is only a small opening bounded by thin folds, and located almost on the surface of the vaginal roof, the infra-vaginal portion of the cervix having disappeared.

SYMPTOMS.—The chief symptom is a premature cessation of menstruation, and following this various symptoms of nervous disturbance, such as pain in the back, debility, mental depression and hysteria.

DIAGNOSIS.—Examination shows a patulous os, but with a small opening, and the sound shows a decrease in depth. The sound must, moreover, be used with great caution, for but little force is required to perforate the uterine walls. I do not think much knowledge can be gained from either a bi-manual or rectal examination, though it is possible that in some instances the size of the atrophied uterus may be clearly established by one or the other of these methods. The diagnosis from congenital malformations, and from normal atrophy following a normal menopause, can only be established from the history and symptoms of the case.

PROGNOSIS.—As a rule the prognosis is unfavorable, though in some instances the uterus has by proper attention been returned to its normal size and function, so that the treatment of such cases should not be neglected.

TREATMENT.—Should there be present a constitutional taint, such as tuberculosis, scrofulosis or chlorosis, this must be combated with the appropriate remedies, the most important of which are mentioned in the chapter on Chlorosis. Should such a taint not be apparent, there may be symptoms present indicating an entirely different class of remedies, such as *Holonias*, *Lilium*, *Cimicifuga*, etc.

Ordinarily the chief dependence is to be placed upon methods that will cause a stimulation of the uterus. This may be accomplished either by the carefully repeated use of the sound, by the introduction of the intra-uterine stem pessary, or by the use of electricity. In applying electricity the negative pole should be attached to a uterine electrode and applied directly to the os or within the cervix, while the positive pole is placed immediately above the mons veneris or over the lower lumbar vertebræ.

HYPERTROPHY OF THE CERVIX.—This does not include that condition of the hypertrophy of the whole uterus known as sub-involution, which will be considered under chronic metritis. Hypertrophy of the cervix may involve either the infra-vaginal portion of the cervix or the supra-vaginal portion. The former is a primary disease, while the latter is secondary to vaginal or uterine prolapsus.

HYPERTROPHY OF THE INFRA-VAGINAL PORTION.—This is,

more strictly speaking, an elongation of the cervix, for an increase in length is the only departure from normal, the cervix being but a trifle, if any, thicker, and the mucous membrane only becoming sufficiently hypertrophied to cover the elongated portion. The condition is entirely non-inflammatory, and is a true hypertrophy, differing entirely from those forms of enlargement of the cervix which result from chronic inflammation. The causes have not, as yet, been ascertained, but it is probable that the condition is often congenital.

SYMPTOMS.—These are usually similar to those which result from prolapsus of the whole uterus—backache, bearing-down pains, difficult walking, leucorrhea, and, if the elongated cervix protrude externally, there is excoriation and frequently ulceration.

DIAGNOSIS.—There is danger that the inexperienced may confound this condition with prolapsus of the uterus, but the finger passed into the vagina may be made to sweep around the elongated cervix without pushing up the roof of the vagina, while bi-manual examination reveals the fundus in normal size and position, and the sound shows a considerably increased depth.

TREATMENT.—This consists in the amputation of the cervix, which, however, should not be performed except in cases where there can be no question of its necessity. Dr. Emmett says, he is “satisfied from experience that the removal of the cervix is never called for except in some forms of malignant disease.” And while it is undoubtedly true, “that this operation, as at present applied, is to a great extent a malpractice,” yet, there are cases where it is imperatively demanded if we have any regard for the health and comfort of the patient. Amputation is usually performed either with the knife or with the galvano-caustic wire. The *ecraseur* is also sometimes used, but as this is not a desirable method it will not be here considered. The knife makes the neatest and most satisfactory operation. With it the removal can be modified as circumstances may demand, the cut surfaces can be accurately approximated, and union by first intention secured. Hemorrhage constitutes the greatest objection to the knife, but this has no especial weight, considering the means we have at hand for its control, and secondary hemorrhage is much less apt to occur than it is when the operation is performed by the other methods named. There are many operators, however, who prefer to make the amputation with the galvano-caustic wire. While there is less danger of primary hemorrhage, yet the removal is not so accurately done, and smoke so obstructs the operator’s vision that he cannot tell what he is doing. Besides, cautery instruments are expensive, and frequently refuse “to go” just when

most needed. Nevertheless this method is recommended by Barnes, Thomas and other eminent gynecologists.

REMOVAL BY KNIFE.—This may be done by several methods. The simplest plan is to draw down the cervix and slip over it a stout india-rubber ring. Then, after having decided just how much to remove, make the amputation by a single sweep of a sharp bistoury. The rubber ring should then be slowly removed by cutting it with a pair of scissors. If considerable hemorrhage then occurs, styptics may be used, or a firm tampon applied.

According to Hart and Barbour (1) the best method of performing the amputation is to split the cervix by a transverse incision into an anterior and posterior lip; then amputate each lip separately, making the line of amputation wedge-shaped; finally bring together the projecting flaps of vaginal and cervical mucous membrane with wire sutures.

Several other methods, much more complicated, have been highly recommended, but I do not see that they possess any especial advantage, and will only mention them, referring the student to more extensive treatises for their description.

The first method is that of Marion Sims, in which a circular amputation is made, and then the stump is covered with mucous membrane. The next is that of Hegar, who also makes a circular amputation, and then stitches the vaginal mucous membrane to the cervical mucous membrane.

Another, and probably a better form of amputation, is that introduced by Marekwald, and modified by A. R. Simpson. This is a flap operation. Three wire sutures are first passed through the cervix at the proper distance. The cervix is then split, and the sutures hooked down and each loop cut, thus leaving three sutures upon each side. Each flap is then cut away to within an eighth of an inch of the sutures, and the latter are twisted, thus bringing together the vaginal and cervical mucous membrane on each lip.

REMOVAL BY THE GALVANO-CAUTERY WIRE.—The patient is anæsthetized, and after being placed in the semi-prone position Sims' speculum is introduced, which had better be made of vulcanite than of metal, that it may not be liable to interfere with the electric current, should it happen to come into contact with the wire. The wire is now slipped over the cervix and tightened, so that the cervix may be slightly constricted, when connection is made with the battery, and the wire being slowly tightened the cervix is removed, care being taken that the wire does not slip downward and denude the cervix rather than amputate it.

1) Hart and Barbour, *Manual of Gynecology*, p. 257.

The parts are then pushed back, the patient kept quiet for about a week, and the vagina daily irrigated with a weak solution of carbolic acid. Hart and Barbour recommend packing the vagina with carbolized lint or wadding, and renewing the same for a week on account of the danger of secondary hemorrhage.

HYPERTROPHY OF THE SUPRA-VAGINAL PORTION.—We shall not here consider that form of hypertrophy of the cervix which results from and is associated with prolapsus, and in connection with which it should be considered.

ETIOLOGY.—It is held by some authors that this form of hypertrophy is often a primary lesion and that the causes are un-

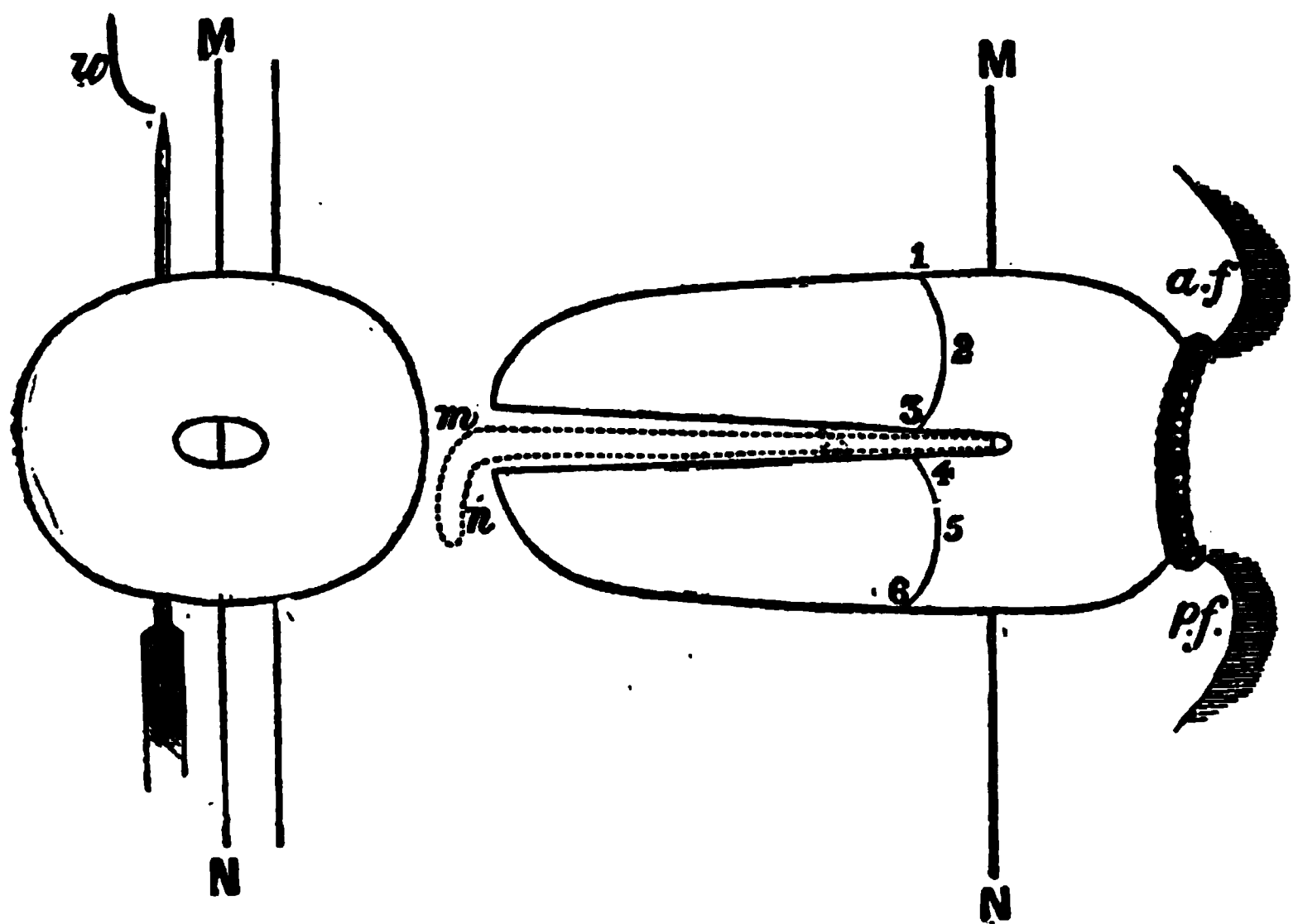


FIG. 116.—DIAGRAM OF AMPUTATION OF CERVIX. To the right is seen the cervix with the ring constricting it, a suture, *MN* in position, the cervix split and the line of amputation marked 1 to 6; *a.f.* anterior and *p.f.* posterior fornix. To the left is seen the cervix in cross-section; two threads are passed and the needle carried through but not yet threaded with the wire *w*

known; and yet, even if this be true, there is little doubt that it is most often due to a prolapsus of the vaginal walls. Such cases were once supposed to result from prolapsus uteri, but it has since been ascertained that the fundus uteri remains in its normal position, but the prolapsing vaginal walls, having exerted traction upon the cervix, have by this constant irritation caused an increase in growth, which is not simply an elongation and attenuation of the normal cervical tissues.

SYMPTOMS.—The symptoms resemble those of prolapsus uteri, for which the condition is often mistaken. Pain in the back and hips, bearing down, difficult locomotion and leucorrhea are nearly always present. The menstruation may be regular, but is usually very profuse. Cystocele, with its attendant evils, is present unless the hypertrophied cervix is large enough to fill the outlet and thus prevent it.

DIAGNOSIS.—The condition is most often confounded with prolapsus uteri, but it is easy enough to discover that while the os presents at the vulva, the fundus is in its normal position, and at the same time the sound shows a considerably increased depth. The prolapsus of the vagina, in the shape of folds, and its attachment to the cervix at its proper place of union, includes the condition of infra-vaginal hypertrophy.

TREATMENT.—The treatment is amputation with the knife, the only difference between the operation here and that for infra-vaginal hypertrophy being that, on account of the close relation of the bladder and peritoneum to the vaginal wall, it is necessary to amputate a much smaller portion of the cervix. Hegar recommended a funnel-shaped incision, terminating in the cervical canal at a point higher up than the point of incision. As it is difficult to excise enough of the cervix to permanently relieve the patient's discomfort, Schröder recommends pushing up the elongated uterus and holding it by a hard rubber ring pessary, and Huguier recommends a T bandage in mild cases.

CHAPTER XV.

ATRESIA OF THE CERVIX. STENOSIS OF THE CERVIX.

ATRESIA OF THE CERVIX.

DEFINITION.—An occlusion of the cervical canal.

This condition is occasionally congenital, a tissue covering and closing the external os; it is, therefore, sometimes considered in text-books as a congenital malformation, but atresia so seldom occurs, unless it is acquired, that the congenital form will not be here considered.

ETIOLOGY.—Atresia very frequently takes place after the menopause, but when occurring at that time it is considered to be a physiological condition. Atresia of the cervix is most often caused by the application of caustic medicines, and also frequently follows amputation of the cervix. It may also be caused by the presence of tumors in the cervix, and may result from flexion or from catarrh of the cervix.

PATHOLOGY.—The changes which take place as a result of the occlusion are chiefly those which follow from the accumulation of discharges whose exit is obstructed. According to Schröder (1): "If the external os is obliterated, the whole uterus becomes distended from the start. The organ may attain a very great size; its walls are generally hypertrophic; occasionally, however, they are as thin as paper. The cervix then disappears completely, and body and cervix unite in one large cavity. If the internal os is closed the cervix remains unchanged, and only the cavity of the body undergoes a spherical dilatation."

Ordinarily the distended cavity contains inspissated menstrual blood, when the condition is known as *hæmatometra*. If the tubes are also distended with blood, we have *hæmato-salpinx*, which is elsewhere considered. Occasionally, menstruation having ceased, the uterus secretes a watery mucus, which causes the distension known as *hydrometra*. If the retained fluids become purulent, it is *pyometra*; or, if they decompose and give rise to gases, the condition is known as *physometra*.

SYMPTOMS.—These are such as naturally result from the retained accumulations, and are quite the same as those of obstructive dysmenorrhea, elsewhere considered, partaking of the nature of a uterine colic of more or less severity at each menstrual period,

1) Ziemssen, Vol. X, p. 48.

but no blood escaping. After a time the distress is rarely entirely absent, but is greatly aggravated at the menstrual crisis. Sooner or later the uterus will become distended, as before mentioned, giving rise to a smooth globular tumor; after this has occurred the uterine contractions are less painful, and the pain less distressing, but the patient is in immediate danger of death from rupture of the uterus or of the Fallopian tubes, which also become distended; or, the blood may escape at the distal end of the tubes and cause pelvic hematocoele, with its usual consequences.

DIAGNOSIS.—The absence of a flow at the menstrual period, notwithstanding the severe labor-like pains, the gradual formation of the smooth, tense, spherical tumor, without the history of pregnancy or of a fibroid tumor or ovarian cyst, and the failure to permeate the cervix with a sound, will usually be sufficient evidence as to the nature of the case.

PROGNOSIS.—Unless relieved by surgical measures the condition is serious. Often the operation, if long delayed, is followed by sudden spasmodic contractions and consequent rupture of the uterus or Fallopian tubes; at other times the admission of air into the cavity by operation induces fatal septicæmia. If these dangers are avoided the operation is usually successful and the patient entirely recovers her health.

TREATMENT.—This consists in an operation for the removal of the retained fluids, which should be through the normal medium of the cervix, if possible; but instances may arise where it will become necessary to puncture the tumor from the rectum, or some other point than the cervix.

A long curved trocar and cannula are used for the purpose. If the os externum can be located, that should be made the point of puncture, but if not, the trocar should be introduced into the posterior part of the cervix and carefully pushed upward, following closely the direction of the cervix, until the uterine cavity is entered. The opening must afterward be maintained by leaving a silver tube *in situ*, or by the frequent introduction of a good-sized bougie. If symptoms of a septic nature, such as rigors and high temperature, become manifest, a double-channel catheter may be introduced and the cavity frequently irrigated with tepid carbolyzed water, but otherwise intra-uterine injections should be avoided.

STENOSIS OF THE CERVIX.

DEFINITION.—Stenosis is a contraction of the cervical canal. Hart and Barbour define it to be “a concentric contraction of its lumen.” By some authors it is referred to as a partial atresia or an incomplete occlusion of the cervical canal. The condition is seldom described in text-books, and is referred to only as one of

the causes of obstructive dysmenorrhea. It is, however, as Hart and Barbour remark, "a precise pathological condition which requires a definite line of treatment."

PATHOLOGY.—The external os is usually the seat of the contraction. It may occur in the cervical canal, and probably occasionally at the internal os, though this is a disputed point. The os may be directly adherent, or may be partially closed by adhesions of either fibrous or connective tissue. The os is very small, hardly as large as a pin-head, which usually lies in the center of a slight depression. If the stenosis is congenital, the cervix has a conical shape and is of very firm consistence. Sometimes, with stenosis at the external os, there is also a spasmodic contraction of the internal os, or a flexion of the uterus, causing obstruction at that point, in which case the cervical canal may become dilated, forming a spindle-shaped cavity.

ETIOLOGY.—Stenosis may be caused by the use of caustics, or by injuries received from instruments, or from blows or falls. It may follow amputation of the cervix, or result from injuries during childbirth, or puerperal inflammations, or be caused by chronic uterine catarrh or adhesive inflammation of the cervical mucous lining.

SYMPTOMS.—The chief symptom of stenosis is dysmenorrhea, the severity of which may vary from a slight uterine colic to one of great intensity, the paroxysms of pain being extremely violent. The difference in severity depends not only upon the extent of the stenosis, but also upon the quantity of the menstrual flow and the rapidity with which it is poured out. Sometimes mucus accumulates in the constricted canal, causing for a time complete occlusion, which will produce more or less dilatation of the uterine cavity, similar to that caused by atresia, but which, as a rule, is sooner or later relieved by the violent uterine contractions, which finally succeed in removing the obstruction and evacuating the uterine contents. Pelvic peritonitis frequently follows as a result of the continued uterine irritation, and then its symptoms complicate those which result directly from the stenosis.

Sterility is sometimes a consequence of stenosis, and is regarded as a symptom, though, of course, it may occur from many other causes.

DIAGNOSIS —When physical examination reveals the conical cervix and the pin-hole os, there can be no difficulty in establishing the diagnosis. But in acquired stenosis these conditions are not so prominent, and a probe or sound must be used; and especially is this the case if the seat of stenosis is distant from the external os. Stenosis, however, does not always exist where there is diffi-

culty in passing the sound, as this may arise from malpositions of the uterus, or from inexperience on the part of the operator.

PROGNOSIS.—In uncomplicated stenosis the prognosis is favorable, operative interference usually being successful in removing the obstruction. Should the case be complicated with anteflexion or with pelvic peritonitis, the probability of effecting a cure is less favorable.

TREATMENT.—This may be either by (*a*) Dilatation, or (*b*) Incision.

DILATATION may be accomplished either by the use of the sound, tents, or dilators; but owing to the ease with which the cervical canal again contracts, the result obtained by these methods are transitory, and a cure is seldom effected.

To dilate with sounds, a set of graduated steel sounds are the best. A small one being passed, it is left in position a few moments, when the next larger is used in the same manner, and so on as far as desired, being careful not to carry the dilatation too far at one sitting.

Sponge, sea-tangle and slippery-elm tents are used, but I prefer the latter, as being more uniform and less liable to cause inflammation or septicæmia.

There have been many forms of expanding instruments invented for dilatation of the cervix, but I much prefer the Molesworth's acme dilator, though I think any such instrument is of little practical use in the treatment of stenosis. The subject of dilatation of the cervix is more extensively noticed in the chapter on Instrumental Examination, to which the reader is referred.

INCISION may be accomplished either by the knife, or by scissors. Several varieties of single and double-bladed knives, known as metrotomes, or hysterotomes (Fig. 117) have been devised. A



FIG. 117.—Hysterotome.

single-bladed uterotome is employed in the following manner: The patient being placed upon her left side, the instrument is introduced without a speculum, and, guided by the index finger, it is passed almost to the internal os, when the blade is thrown out and the instrument withdrawn, pressure being increased gradually so that the incision is deeper at the external than at the internal os. The instrument is then re-introduced and a similar incision made on the opposite side. Both incisions are made at

once with the double-bladed hysterotome. Sometimes it is necessary to dilate with a tent before the hysterotome can be used.

Dr. Marion Sims substituted the scissors for the knife. His method was as follows: The patient being placed in the semi-prone position, the speculum is introduced and the uterus is grasped with the volsella. One wall is then cut with a pair of



FIG. 118.—Peaselee's Uterotome.

long scissors, one blade of which is passed into the cervical canal until the outer blade reaches nearly to the base of the vaginal portion, and the incision is made. Then the opposite wall is divided in the same manner. Sims' uterine knife is then passed up and the tissues above the reach of the scissors are cut, including, if necessary, the os internum. A roll of carbolized cotton is then saturated with glycerine and introduced into the wound, and a vaginal tampon applied. The tampon should be removed on the following day, and on the third day the cotton dressing should be renewed, which must be repeated every other day in order to prevent a return of the stenosis. The patient should keep her bed until the dressings are permanently removed.

Thomas recommends the following simple modification of the above methods: (1) Make a very superficial incision through the



FIG. 119.—Thomas' Glass Cervical Plug.

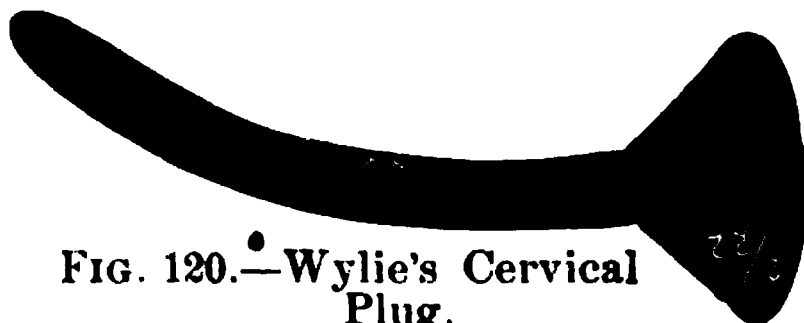


FIG. 120.—Wylie's Cervical Plug.

submucous layers of the parenchyma from the os internum through the whole course of the canal, and place within the canal a roll of cotton saturated with a weak solution of persulphate of iron. This may be allowed to remain in place for forty-eight or fifty-six hours. At the end of a fortnight a stem of glass (Fig. 119) or vulcanite (Fig. 120) may be inserted.

1) Diseases of Women, p. 591.

CHAPTER XVI.

LACERATION OF THE CERVIX.

As LONG ago as 1855 Sir James Simpson recognized the fact that a torn cervix was "a most common cause of aggravated cervical disease." But it was nearly ten years later that Dr. Emmett first attempted to remedy the condition by a plastic operation, and as late as 1869 he published his first paper calling the attention of the profession to the etiological importance of these lesions, and to his method of operating for their cure. To-day this operation is acknowledged as one of the most important in minor gynecological surgery, and while there can be no question as to its frequent abuse by ignorant or designing practitioners, it, nevertheless, has been, and doubtless will continue to be, a boon to many suffering women.

PATHOLOGY.—Laceration of the cervix may be either unilateral or single (Fig. 121), bilateral or multiple (Fig. 122), and

FIG. 121.—SINGLE LACERATION. The flaps are held apart with a double tenaculum. (Emmett.)

may divide only the infra-vaginal cervix, or a small portion of it, or may extend more or less above the vaginal attachments, in which latter case a cicatrix is formed which draws the cervix to one side, or sometimes even backward or forward.

The most frequent seat of the laceration is on the left side of

the anterior lip, which is due to the fact that the pressure of the long diameter of the head is most often in that direction. The chief pathological changes are those which result secondarily from the laceration. The uterus usually becomes prolapsed and the lips of the cervix everted on account of the traction of the vaginal insertion. Thus the mucous lining becomes exposed, and friction against the vaginal walls and contact with the vaginal secretions, together with injuries from coition and other sources, give rise to erosions, granular inflammations, and even to cystic degeneration of the entire vaginal portion of the cervix. Very frequently, however, these complications do not occur owing to the fact that the eversion is prevented by cicatricial tissue in the cleft of the laceration which holds the edges in apposition, and thus preserves the normal outline of the cervix.

Retroflexion is a common consequence of laceration, and pelvic cellulitis often occurs, being generally situated between the

FIG. 122.—Multiple or stellate laceration. (Emmett.)

folds of the broad ligament at the side of the laceration. Involution is almost invariably delayed by deep lacerations, so that the condition known as subinvolution marks a majority of cases.

ETIOLOGY.—Very rarely is a laceration of the cervix caused by anything else than labor at or near full term, but it may result from abortions, or from the passage of polypi, fibroids, or even from the passage of large, firm clots during menstruation. During labor it would naturally be supposed that a laceration would be most apt to occur in a rapid delivery where the os had not had time to properly dilate, but Dr. Emmett says that "lacerations are most often the result of tedious labors."

SYMPTOMS.—The objective sign of a laceration and its com-

plications have already been mentioned. The subjective symptoms are not pathognomonic, and depend chiefly upon the secondary disorders and complications which may prevail. It is now a well established fact that lacerations of the cervix in and of themselves do not produce any symptoms. Cases are known where deep lacerations have been present many years without giving rise to any symptoms whatever, owing to the fortunate fact that the usual sequelæ of laceration did not follow.

The symptoms are, therefore, for the most part, those which are described under chronic metritis, sub-involution, retroflexion, granular inflammation of the os, etc. Leucorrhea, pain in the small of the back, bearing-down pains, irregular menstruation, menorrhagia, inability to stand or walk, are almost always found, but any or all of these symptoms may be absent. In some cases reflex neuroses are manifest, and the symptoms above mentioned may or may not be present. Then we may have local neuralgia, with excessive tenderness of the parts, or sympathetic neuralgia in other parts. One case is reported where cataleptic convulsions were present, and could be produced by pressing the finger into the angle of the laceration, but they did not occur from any other manipulation of the cervix. Sometimes the symptoms are those of an hysterical nature only. I had such a case last year, which came to me from the private hospital of a distinguished gynecologist in one of our large cities. He had made the operation, but while he claimed union to have been complete, the patient grew worse rather than better. The doctor then desired the patient to allow him to operate for a slight laceration of the perineum, which she declined, and, leaving the hospital, put herself under my care. An examination revealed the fact that the operation had been a total failure. After a few weeks' preparatory treatment I made a successful operation, and six weeks later sent the patient home entirely cured, and she so remains. Her symptoms were solely of an hysterical nature, and confined to the motor sphere, the sensory nerves being but little affected. It is probable that in such cases the symptoms arise from constriction of the ends of the nerves in the cicatrix of the laceration.

DIAGNOSIS.—A careful physical examination can leave little doubt as to the presence of the laceration. Sometimes, when the lips are considerably everted and the cervix thickened, the diagnosis can be made certain only by drawing together the everted lips with a pair of tenacula, when the laceration will be plainly seen. The presence of the laceration being established, the next question is to ascertain the character and extent of the complications, which is of the utmost importance before operative measures are adopted.

PROGNOSIS.—Generally, if the operation is properly per-

formed, union takes place without difficulty; yet it is sometimes necessary to repeat the operation, and in some cases the parts fail to unite in spite of the most careful treatment. It is usually considered that recent cases are more amenable to treatment than those of very long standing, and in those where granulations are extensive or other important complications are present the prognosis should be guarded. In such cases the operation forms only a part of the treatment and cannot be expected to relieve all the morbid phenomena that may be present. Septic inflammation has been known to follow the operation, and several fatal cases are reported.

TREATMENT.—In case the laceration is discovered at the time of delivery, spontaneous union may possibly be brought about by proper treatment. Hot water injections should be used twice daily for several days, and kept up once a day for at least two or three weeks. Once a day the injection of hot water should be followed by an injection of about four ounces of tepid water in which has been placed one drachm of fluid calendula and a half ounce of glycerine, the solution being slowly thrown directly upon the wounded tissues. If the case is of too long standing to be benefited by this treatment it becomes necessary to resort to Emmett's operation, otherwise known as hysterotrachelorrhaphy. The operation, however, should not be made if the laceration has produced no disturbance of the system of any kind; and if it be complicated with pelvic inflammation, the operation should not be attempted until this condition has been reduced as far as possible by proper local treatment, which is elsewhere considered. In some cases, even after having received treatment, cellulitis may exist to such an extent as to render it quite unsafe to attempt the operation, though Dr. Goodell and others consider cellulitis an indication for the operation, and do not hesitate to operate on account of its presence.

Having decided upon the operation, the patient should be placed upon a preparatory treatment for at least two or three weeks. She should use hot water injections daily, and any local disturbances should receive appropriate treatment, with a view of reducing any inflammation that may be present to the minimum. For this purpose I generally use the following:

R—Fluid Hydrastis, ℥i;
 Fluid Calendula, ℥i;
 Glycerine, ℥vi. Mix.

Sig. Apply on a pledget of cotton once a day, or put one tablespoonful in four ounces of warm water and use as an injection.

The patient should also be placed upon the appropriate constitutional remedy.

DETAILS OF THE OPERATION.—The operation consists in simply paring the edges of the laceration, and bringing them together by means of sutures, but this process is not always as simple as it may appear. The operation should be made within from three days to a week after the menstrual period. The bowels should be moved by an enema about an hour before the operation, and the bladder emptied the last thing.

I believe it is customary to use an anæsthetic, but I have never done so, nor do I believe it necessary or advisable, except, perhaps, in cases of very nervous women. The operation is comparatively painless, and the patient's sufferings are chiefly from fatigue and the pressure of the speculum.

The patient being placed in the semi-prone position, Sims' speculum is introduced and the parts brought into view. Some operators prefer the lithotomy position. The cervix is then fixed by a double tenaculum (Fig. 123) and brought down so that it can



FIG. 123.—Emmett's Double Tenaculum.

be reached, but drawing the uterus down to the vaginal orifice is unnecessary, and should not be practiced. Having been careful that the tenaculum is so placed as not to interfere with the operation, it is given to an assistant, and with it he holds the uterus steady during the operation. Dr. Emmett slips a uterine tourniquet over the cervix, to control the hemorrhage; a rubber ring can be used for this purpose, but I have never found either of these necessary. If the hemorrhage proves considerable, an injection of hot water will control it, and in exceptional cases a stream of hot water can be kept flowing over the parts by means of a fountain syringe. The next step, after drawing down the cervix, is to place the edges of the laceration in apposition, in order to estimate the amount of tissue necessary to be cut away. The surfaces then are freely pared with the knife or scissors. Most operators prefer the scissors, but I always use Sims' rotating knife (Fig. 100). Enough tissue should be removed to include all irregularity of surface and any diverging fissures, leaving a uniform, smooth cut surface on each side, and at the same time being extremely careful that every trace of cicatricial tissue in the cleft of the laceration be removed, though efforts should be made to avoid cutting deep enough in the fissure to wound the large vessels

in that locality (Fig. 124). As Dr. Comstock well remarks, "the introduction of the suture is the most difficult part of the operation." The suture should be of silver, and about eight inches in length. I prefer the lance-pointed needles, but Dr. Emmett recommends the round needles, as they make a smaller hole and are followed by less hemorrhage. The needles should be

FIG. 124.—OPERATION FOR LACERATED CERVIX. *a, b*, extent of denuded surface.

fixed in a Russian needle-holder (Fig. 125) and passed in just at the upper edge of the fissure, holding the part firmly by means of a blunt hook (Fig. 104), which makes counter-pressure. The suture is drawn half through, but is not firmly twisted until the



FIG. 125.—Russian Needle-Holder

lower sutures are all in, but after each suture is placed the ends should be lightly twisted and banded to an assistant to hold out of the way. These should be about one-third of an inch apart. In the lower sutures it is usually necessary to pass the needle through one lip and then through the other, being careful to enter at a corresponding point, so that there may be no puckering. Some operators prefer to use Jackson's cervical needle, which possesses some advantages over the ordinary needle. The shape of this needle and the method of using it is illustrated in Fig. 129.

All the sutures being placed, they are firmly twisted in the order they were introduced, and the ends either cut off or left to be brought out at the vaginal orifice, where they should be tied :

FIG 126 —EXTENT OF DENUDED SURFACE AND COURSE OF SUTURES ACCORDING TO EMMETT (*Emmett*). The sutures are passed in order 1, 2, 3, 4; the course of suture 4 alone is indicated by letters *a, b, c, d*

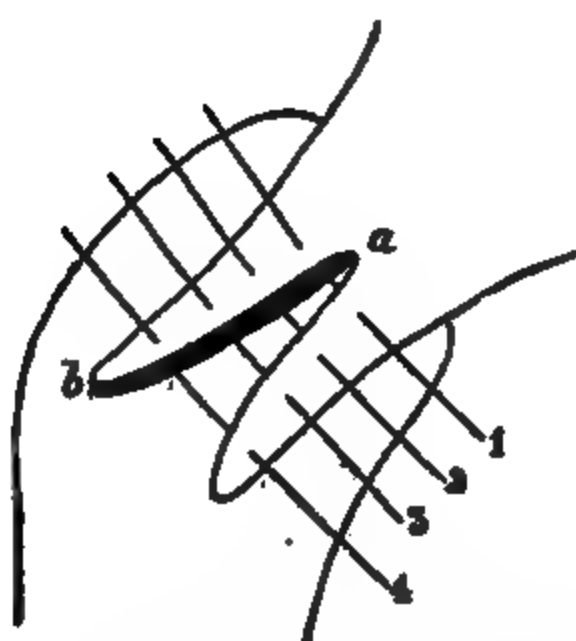


FIG. 127.—Mode of passing sutures; *a, b*, denuded surface as in Fig. 124. The sutures are passed in order as numbered

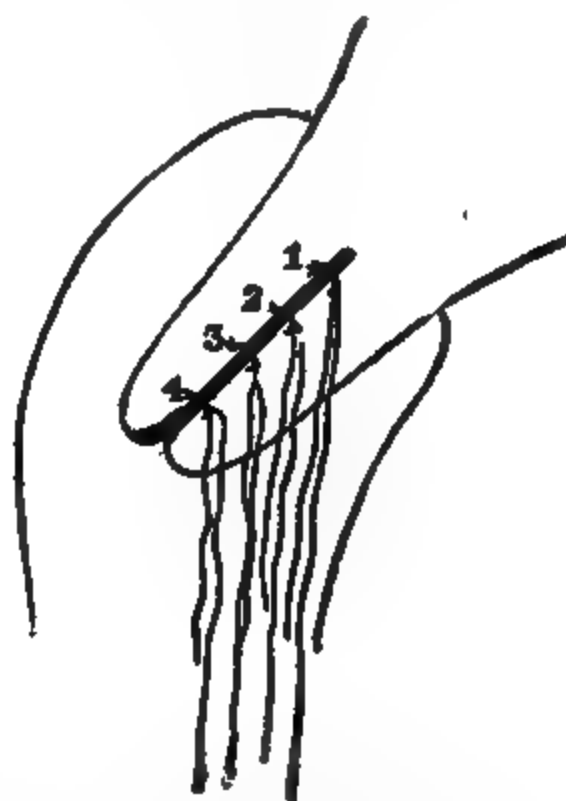


FIG 128.—Appearance of cervix when sutures twisted up. They are left long so as to extend to vaginal orifice and are removed in order as numbered

together and wrapped with wadding. I think, all things considered, that it is best to follow Dr. Emmett's plan and cut the sutures short. The sutures should be removed in order from above downward, about the eighth or ninth day. If it is found that the edges have not perfectly united, the lower sutures may be left a few days longer. The patient should remain in bed until after the sutures have been removed, and meanwhile, after the

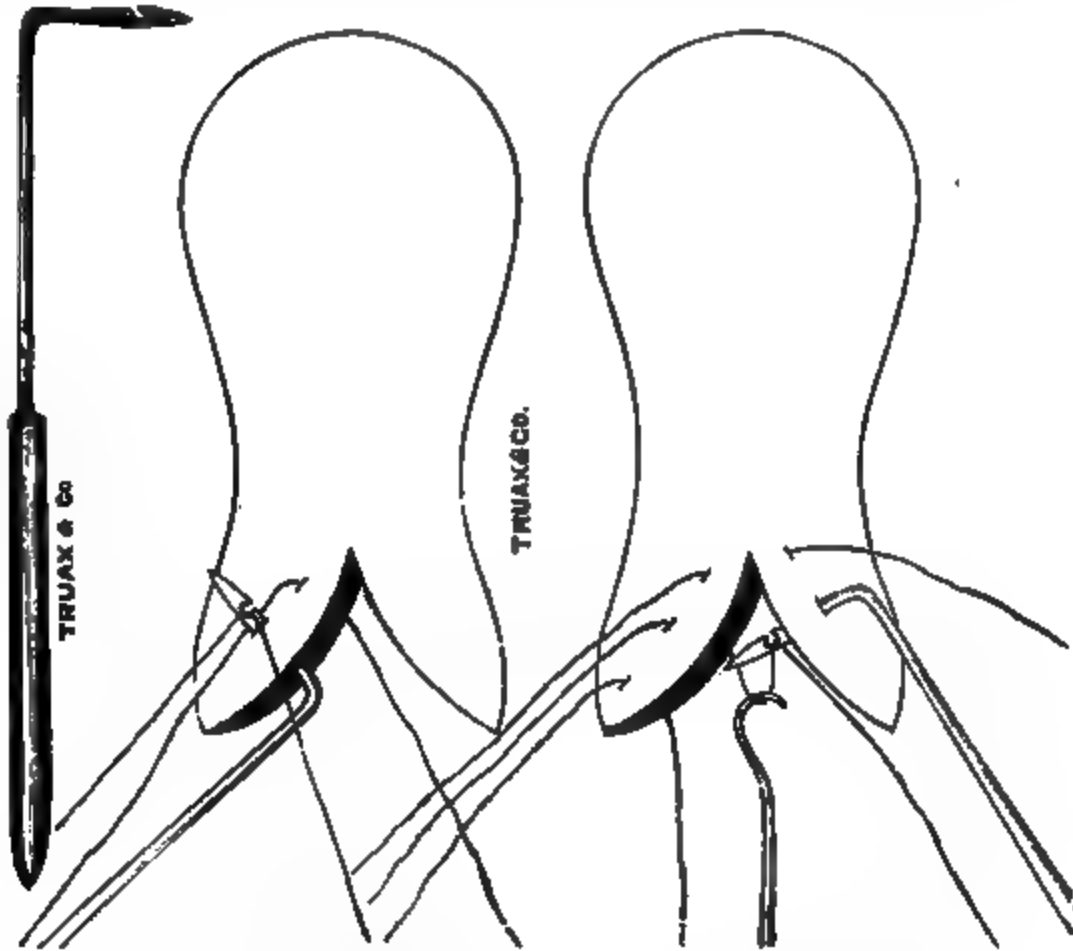


FIG 129 —Jackson's Cervical Needle.

second day, she should receive an injection daily of tepid water, in which has been placed a few drops of fluid calendula.

Of course, I have given only the method of treatment for a simple laceration. Should the laceration be double, the opposite side is treated in like manner, and if complicated fissures occur which are too much for the operator's ingenuity and skill, I would refer him to Dr. Emmett's exhaustive articles on the subject.

CHAPTER XVII.

CHRONIC CERVICAL ENDOMETRITIS.

SYNONYMS.—Endo-cervicitis ; chronic cervical catarrh.

DEFINITION.—A chronic inflammation of the mucous lining of the cervical canal.

FREQUENCY.—This affection is the most frequent disease of the female pelvic organs, and exists to a greater or less extent as a complication of other pelvic diseases. On account of its frequency, Dr. Thomas regards it as a normal condition, “at any rate, in the married women,” and this may be true so far as slight erosions and mucus discharges are concerned, but it certainly is not true when we consider the severer forms of the disease which we are called upon to treat. Chronic inflammation may exist either in the cervix or the body of the uterus, and limit itself to either locality, though it does frequently extend and involve more or less of the entire uterine lining.

PATHOLOGY.—This condition is essentially a glandular disease, the first pathological change being a hyperæmia of the follicles of the cervical canal, which are called by some the glands of Nabothi. They next become swollen, enlarged, elevated, and their mouths dilated, and pour forth an increased quantity of glairy mucus, which soon becomes thick and tenacious, and finally yellow, and frequently tinged with blood. The possible amount of this secretion can be realized only when we remember that the rugæ, or plicated folds of the mucous membrane of the cervix, create a very much greater secreting surface than the length of the cervix would indicate, and that within these folds there are estimated to be about ten thousand of the follicles or glands Nabothi. The secretion is acrid and corrosive in its character, and it has until quite recently been supposed that this secretion caused a disintegration of the epithelium, giving rise to an abrasion, which finally affects the deeper tissues, and the papillæ, becoming hypertrophied, project from the surface, giving it a granular appearance, hence the name of granular degeneration.

The recent investigations of Ruge and Viet have shown that the condition is not one of degeneration and destruction of tissue, but a proliferation of tissue. The mucous membrane is not abraded, the apparently raw surface being covered by epithelium, and the granulations are new formations, having no connection

whatever with the papillæ of the mucous membrane. There is great proliferation of the cylindrical epithelium and glands, which displaces the pavement epithelium, and appears as protuberances, while the surface is thrown into numerous folds, producing glandular recesses and processes.

“If the recesses be long and narrow, the surface is split up into distinct papillæ; this constitutes the papillary erosion. If the ducts of the glandular recesses become obliterated, the secretion will distend the gland below and produce retention-cysts; these will increase in size, and may come to the surface and burst. Thus there is formed the follicular erosion. The raw-looking surface is, therefore, a *newly-formed glandular secreting surface*, resembling in structure the cervical mucous membrane. This addition to the extent of secreting surface increases the leucorrhœal discharge, which is the leading symptom.” (1)

The proliferation is usually more manifest around the external os, causing red granular patches of irregular outline and extent, and which appear well defined from the paler normal mucous membrane which covers the cervix. This condition has usually been termed “ulceration,” but as there is no destruction of tissue, the process is not one of “ulceration,” and, as Hart and Barbour remark, “that term should be abandoned.”

Dr. Thomas devotes a chapter to the description of these conditions, apart from chronic cervical endometritis, denominating them respectively as “granular and cystic degeneration of the cervix,” the former being the papillary form. From the recent investigations above mentioned, it is evident that such a classification is entirely erroneous, and that we must consider the conditions referred to as simply an extension and aggravation of the catarrhal condition of the cervix, which may be present to a greater or lesser degree throughout the entire cervical canal. Not infrequently an eversion of the cervical mucous membrane takes place, especially when laceration is present, in which case the constant irritation to which the everted surface is subject only serves to aggravate the condition. Sometimes the proliferations become excessively luxuriant, having more or less the appearance of fungus growths, and have been termed “cockscomb granulations.”

In cases of long standing, a hyperplasia of the connective tissue also occurs, and this complication may gradually involve more or less of the entire uterine parenchyma, until the primary catarrhal condition is insignificant in comparison with the chronic metritis which has become established. So, also, in cases where the inflammation has extended to the connective tissue, may we have destruction of the epithelium and a true ulcerative pro-

1) Hart and Barbour, Op. Cit., p. 278.

cess, differing entirely from the catarrhal condition already considered.

ETIOLOGY.—There are both predisposing and exciting causes. The chief predisposing causes are, according to Thomas (1): Natural feebleness of constitution; the existence of a cachexia, as tuberculosis or scrofula; impoverishment of the blood from chlorosis or other cause; prolonged mental depression; insufficient nutriment; excessive lactation; frequent parturition; subinvolution; styles of dress which depress the uterus; want of exercise and fresh air.

The chief exciting causes are injuries to the cervical canal during parturition, especially laceration of the cervix. Next comes abuse of the sexual function; cold injections to prevent conception; the use of the sound and other methods to produce abortion; the use of tents and pessaries; displacements of the uterus; and last, but not least, an extension of vaginitis, especially gonorrheal, upward, and extension of endometritis, especially puerperal, downward.

SYMPTOMS.—The chief symptom, and that first manifest, is leucorrhea. Often subjective symptoms are entirely wanting for a long time, and the gradually-increasing leucorrheal discharge is all that calls attention to the condition. This in appearance resembles the unboiled white of an egg, being a clear, glairy, transparent fluid. Sometimes it is more white and opaque, and is frequently tinged with blood. The patient soon begins to complain of a pain in the back and loins, especially when exercising, and a continual, heavy, dragging sensation about the pelvis. If the endometrium becomes involved, or hyperplasia exist to any extent, the menstruation becomes irregular, the quantity being usually increased.

After a time, the patient usually becomes anæmic, weak and nervous from diminished nerve force and from malnutrition consequent upon derangement of digestion. Should the disease extend to the endometrium or uterine parenchyma, the symptoms become more numerous, and are to a greater extent connected with the secondary complications, rather than with the primary disease. This is true, also, when vaginitis or cystitis occur to render the disease more intractable and distressing.

Physical examination reveals to the touch a more or less patulous condition and irregular shape of the cervix, if the patient has borne children, being always worse if there has been laceration of the cervical canal. In nulliparæ the only change may be an os somewhat enlarged, with its lips slightly puffed.

Examination with the speculum shows extending from the os the characteristic albuminous discharge, which is so tenacious that

1) *Diseases of Women*, p. 239.

it is removed with great difficulty. After the parts have been cleansed, the patulous os is seen, and more or less of the red, granular surface, the extent of which varies according to the amount of the os externum which is involved in the catarrhal processes. In case the disease is confined to the cervical canal, and there is no eversion, the external os may present a normal appearance, and we may diagnosticate the condition only by the characteristic discharge and the constitutional symptoms which are present.

DIAGNOSIS.—The most important diagnostic question to settle is, whether or not the endometrium is involved; and often it will be found impossible to come to a satisfactory conclusion. If endometritis is present, the sound will usually reveal a considerable degree of sensitiveness, and the discharge be less albuminous and tenacious in its character, and more often purulent and streaked with blood. Generally, too, the constitutional symptoms are more numerous and of a graver nature. If the cervix is much thickened and indurated, and especially if at the same time the patient complains of burning or lancinating pains, carcinoma should be suspected.

PROGNOSIS.—The duration of the disease depends upon the extent of surface involved, the condition of the general health, and the character of the complications which may be present. In case of any considerable severity the course is usually tedious and discouraging, in spite of treatment. Dr. Thomas says that “when there is little granular disease, and a large amount of thick, resisting mucus hangs from the cervical canal, the prognosis, according to my experience, is very doubtful, and sometimes hopeless, unless very radical measures be adopted. In all cases the prognosis should be guarded, as at the best they may require treatment for months, and even when apparently cured the condition is liable to return upon very slight occasion.”

TREATMENT.—The treatment of a case of chronic cervical endometritis will depend very largely upon the constitutional condition of the patient. Where she has become weak and anæmic, hygienic measures are of great importance. A nourishing diet, fresh air and sunshine, with appropriate exercise, proper clothing, change of scenery, limitation of sexual indulgence, and a proscription of all improper efforts to prevent conception, are conditions which should not be forgotten. In the constitutional treatment the indications for remedies will depend entirely upon the symptoms of each individual case. The remedies chiefly required are *Sepia*, *Calcarea carb.*, *Ferrum*, *Mercurius*, *Kali iod.*, *Sulphur*, etc. For their special indications the reader is referred to the chapter on *Leucorrhœa*. The local treatment of these conditions is

of great importance, while undoubtedly it has been abused by some physicians, and patients have suffered therefrom, yet chronic cervical endometritis is not a self-limiting disease, and is of so purely a local character that I think but few cases would ever recover without appropriate local treatment.

For purposes of cleanliness the patient should use daily an injection of tepid water and castile soap, but, except where the surface of the os is implicated, medicated vaginal injections are of but little value. If the os is more or less covered by catarrhal erosions, some benefit may be derived from the use of the following prescription :

R.—Fluid Hydrastis, ℥i;
Fluid Calendula, ℥i;
Glycerine, ℥vi. Mix.

Sig. One tablespoonful in four ounces of tepid water as an injection once or twice a day.

Much more benefit, however, is usually derived from the direct application of the above medicines on a cotton tampon. After considerable experience I am convinced that the application of simple glycerine will, in most cases, answer a better purpose than, or, at least, do equally as well as, the same combined with Hydrastis or any other medicine. In speaking of the use of glycerine Dr. Ludlam says (1) “This substance has the power of causing a free discharge of serum from its engorged capillaries, and thus of removing an incidental cause which not infrequently serves of itself to perpetuate the disease.

The determination of blood to the dependent cervix, and its stasis therein, is a prime cause of the excessive and abnormal secretion from the cervical glands. If we relieve this local embarrassment of the circulation, it is like extracting a splinter from the flesh in a case of irritative fever. Moreover, the expedient is simple, available, and harmless. It neither interferes with the use of internal remedies nor antidotes them. It has no injurious effect upon menstruation, nor does it entail any reflex or remote consequences upon other organs, which may or may not be implicated.”

With these conclusions I can fully agree. There are cases, however, in which the use of simple glycerine proves inefficient. In such I prefer to apply iodine and glycerine, 20 grains to the ounce, using a camel's-hair brush, or a cotton-wrapped probe for the purpose, which can be passed up as far as the internal os, and then withdrawn, after which a tampon of glycerine may be applied. In other cases glyceroles of Hydrastis, Sanguinaria, *Pinus canadensis* or Tannin may answer better. The method of prepar-

1) *Diseases of Women*, Sixth ed., p. 463.

ing a tampon or "glycerine plug," is described in the chapter on Ovaritis.

When the disease fails to respond to ordinary treatment, and the mucous follicles are the seat of an aggravated inflammatory condition, which has resulted in a cystic degeneration, or where the granulations have become very exuberant, it may become necessary to destroy entirely the diseased surface, in the hope that nature will furnish reparative covering, as it usually does. Sometimes this may be done with iodine or carbolic acid, but more often nitric acid will be required. The parts must be freely touched, using a firm wooden toothpick, or a cotton-wrapped probe. The parts should first be thoroughly cleansed, and it is well to pack a pledget of cotton well soaked in bicarbonate of soda solution in the vagina beneath the cervix, in order to protect the vaginal mucous membrane from injury. After the acid has been applied the cotton should be removed, and the cervix syringed with cold water, after which a glycerine plug is applied, and removed daily for a week or more. Great caution should be observed that contraction of the cervical canal does not take place. Probably the best method for destroying the unhealthy surface is to mechanically scrape and tear away the enlarged mucous glands and vegetations by means of a curette, after which carbolic acid should be carefully applied, and the case subsequently treated as one of cervical endometritis. Sometimes it is necessary to repeat the operation after two or three weeks, in which case it may be better to use the nitric acid than the curette.

The reader is also referred to Chapter XXI, on the "Treatment of Chronic Metritis, Endometritis and Peri-uterine Inflammations by Electricity."

CHAPTER XVIII.

CHRONIC CORPOREAL ENDOMETRITIS.

SYNONYMS.—Chronic endometritis; chronic uterine catarrh; internal metritis; uterine leucorrhea; blennorrhea of the uterus.

Acute corporeal endometritis is of rare occurrence, except at the puerperal period and in the course of acute infectious diseases, and, therefore, will not be considered in this work.

DEFINITION.—A chronic inflammation of the lining membrane of the uterus above the os internum.

FREQUENCY.—Chronic corporeal endometritis is not nearly of so frequent occurrence as the cervical form, yet it is probably a much more common disease than has generally been supposed. By some authors it is claimed that endometritis is always more or less general, that it never involves either the cervix or body exclusively, but that wherever the disease may originate, it sooner or later involves more or less of the entire uterine cavity, the os internum being no bar to its extension either upward or downward. This may be true, yet from a practical standpoint, we may consider the disease as being located at the point where it preponderates, not allowing for any comparatively slight extensions beyond the internal os. At the same time, we must admit the relative frequency of general endometritis, where both the cervix and body are implicated.

PATHOLOGY.—According to the recent investigations of Carl Ruge, De Sinéty and Olshausen, there can be distinguished three pathological types of endometritis, according to the tissue involved. These may be designated as the glandular, the interstitial and the embryonic forms; but it must be understood that no one of these forms exists absolutely independent of the others, as it is probable that the process is never confined to but a single kind of tissue.

In the glandular form there is proliferation of the glandular epithelium, and the cells of acini increase in size, thus causing hypertrophy; or, according to Ruge, instead of hypertrophy, the glands may increase in number, "either by the formation of diverticuli in the old glands, or by new depressions in the surface of the mucous membrane." In the glandular form, leucorrhea is said to be the chief symptom. In the interstitial form, there is found a variety of structural changes, according as to whether the

cellular elements or the connective tissue are involved. The mucous membrane is at first swollen, vascular, soft and succulent, is smooth on its surface or roughened in spots, and is hypertrophied to four or five times its normal thickness. Portions of this scraped away with a curette show under the microscope, according to Olshausen, "great hypertrophy of the mucous membrane, with increase of all its elements; moderate dilatation of the lumina of the glands, enlargement of the blood-vessels, and marked cellular infiltration of the connective tissue." In this form, while the newly-formed connective tissue elements are soft and succulent, hemorrhages are frequent, and constitute the chief symptom of the interstitial variety.

The embryonic form is described only by De Sinéty. "In other cases," he says, "the vegetations are specially constituted of embryonic tissue, with few blood-vessels. There are only traces of the glands and some remains of more or less degenerated epithelium. We have to do with a truly inflammatory tissue, comparable to that which forms upon an exposed wound. At certain points there are islands of degenerated elements, which are not colored by reagents, and are analogous to those observed in foci producing pus. This degeneration of embryonic elements explains to us the abundance of the muco-purulent discharge observed during life."

According to Winckel (1), "when the inflammatory process is long continued, the mucous membrane finally atrophies and becomes thinned, the ciliæ are lost, the gland cells, or even the entire glands, disappear, and at last the only covering to the inner surface of the uterus is a thin, smooth layer of connective tissue."

ETIOLOGY.—The causes are both predisposing and exciting.

PREDISPOSING CAUSES.—Strumous, or tubercular diathesis; syphilis; chlorosis; exhaustion from parturition or lactation.

EXCITING CAUSES.—Acute endometritis; cervical endometritis; suppression of the menses from exposure; obstruction to the escape of the menstrual fluids; abortion and parturition, especially when any of the secundines remain; or from getting up too soon; subinvolution; displacements, especially retroflexion and prolapsus, which give rise to congestions; pelvic peritonitis; excessive sexual indulgence, or ungratified sexual desire; tumors in the uterine cavity or walls; injuries from sounds, tents, etc.; injuries from efforts to produce abortion; extension of vaginitis, specific or simple.

SYMPTOMS.—Leucorrhœa and menorrhagia are the leading symptoms, but it is seldom that both occur in the same case, as

1) Winckel, Diseases of Women, p. 438.

they arise from two distinct pathological types of the disease. (See Pathology.)

Leucorrhea is the most important and most constant symptom. The discharge is watery and glairy, like starch-water, or it is purulent, and very commonly commingled with blood. It is always less thick, viscid and tenacious than cervical leucorrhea, but it must be remembered that cervical endometritis may always exist in the same case, and both uterine and cervical leucorrhea be present. The uterine secretion has an alkaline reaction, while that of the vagina is acid, yet we find that corporeal leucorrhea is much more acrid and irritating than cervical leucorrhea, and, though small in quantity, it frequently causes disagreeable and painful excoriations of the vagina and external genitals, producing a pruritus, and, by conveyance, it sometimes causes urethritis and blennorrhea in the male.

Menorrhagia is frequently present. The flow appears too frequently, and is too free or too prolonged. Sometimes, after continuing for a few days, it will stop a few hours or a day and then return; occasionally the flow becomes continuous, and at greater or less intervals profuse and dangerous hemorrhages may occur.

Dysmenorrhea may be present, from the hyperæmia and swelling of the endometrium, from an accompanying stenosis or flexion causing obstruction, or from an exfoliation. Some authorities consider the latter condition an evidence of chronic corporeal endometritis, but it will be best considered under the head of membranous Dysmenorrhea.

Weakness, or pain in the back, a weariness and discomfort rather than an actual pain, is a frequent symptom. Sometimes there may be a dull, aching, dragging pain in the hips, or uterine or ovarian region, and frequently the patient complains of a burning sensation across the hypogastrium. The pain, as a rule, depends more upon the complications that may exist than upon the endometritis.

Digestive and nervous symptoms are almost invariably present in long-standing cases. The digestion is impaired, the appetite poor, and the patient becomes feeble and anæmic, especially in the hemorrhagic type. Neuralgic headache is frequently present, especially on the crown or left temple, and the patient may be more or less hysterical and become sad and despondent, amounting in some cases to melancholia. Tympanites is often present, and obstinate constipation is not unusual, both probably depending upon a sympathetic disorder of the nerves governing peristalsis. Sterility is present in a majority of cases. This may be due either to the discharges destroying the vitality of the sper-

matozoa, or to their entrance to the uterine cavity being mechanically prevented; or, should fecundation occur, retention and fixation of the fertilized product fails to take place on account of the diseased condition of the endometrium; or, should the attachment be made, it may prove imperfect, and abortion result. Thus, as Hart and Barbour remark, "a vicious circle is produced. As mentioned under Etiology, endometritis frequently follows abortion; abortion, in its turn, frequently follows endometritis."

Physical exploration does not reveal much that is reliable. The uterus shows greater depth and is more sensitive to the sound and to bi-manual touch, and the sound is frequently tinged with blood when withdrawn, the internal os is patulous, and at the external os may be seen the characteristic discharge, usually mixed with that from the cervix.

DIAGNOSIS.—This can be established only by a careful consideration of the physical signs and subjective symptoms already mentioned, not forgetting the frequency of such complications as cervical endometritis, displacements, metritis, etc., which may serve to mask the symptoms of this disease. A curette may be introduced within the cavity of the uterus and sufficient of the diseased tissue be scraped away for microscopical examination, without injury to the patient. Such an examination would reveal large decidual cells or fragments of the villi of the chorion in a state of fatty degeneration, in case there were endometritis due to an incomplete emptying of the uterus after parturition. It would also serve to positively differentiate between endometritis and a commencing malignant disease, by establishing the presence or absence of the typical cells of either carcinoma or sarcoma.

PROGNOSIS.—Endometritis seldom results fatally, but it is generally protracted, and gives rise to anæmia and constitutional disorders which render life miserable. Some authors claim that the disease is incurable, but, although it is very intractable, many cases, if not cured, are at least greatly ameliorated under appropriate treatment, and remain so until the menopause arrives, which usually marks the end. The most difficult cases are those which occur in persons of a scrofulous, tubercular or syphilitic diathesis, or in those which are of gonorrheal origin.

TREATMENT.—My remarks on the hygienic treatment of cervical endometritis are equally applicable here. Very nearly the same class of constitutional remedies, also, is required, for the indications of which reference is made to the chapter on Leucorrhea.

LOCAL TREATMENT.—The character of the local treatment to be employed in chronic corporeal endometritis, and the extent to which the treatment should be carried, are mooted questions, and their consideration is of the utmost importance. I am convinced

that most of the heroic measures employed are a source of aggravation rather than cure.

Intra-uterine injections as a means of medicating the interior of the uterus is an ancient method, having been advised and practiced by Hippocrates, and alternately advised and condemned by his followers to the present time. On account of the pain and dangers which attend this method, and the fact that medicines may be applied to the endometrium in a much safer manner, it is at present rejected by most gynecologists in this country and in Europe. In case it is thought desirable to use intra-uterine injections they should be made with a syringe provided with a double channel, so that the injected fluid may rapidly escape. Molesworth's doublecannula and bulb intra-uterine syringe is the safest and best instrument of the kind that I have seen. Jennison's douche (Fig. 130) is also an excellent instrument. The remedies



FIG. 130.—Jennison's Douche.

best employed in this manner are tincture of Iodine, or fluid Hydrastis. Dr. Hale recommends the following formula, which is also endorsed by other gynecologists:

R.—Muriate hydrastis, gr. v;	
Glycerine, ʒss;	
Water, ʒiss.	Mix.

One-half drachm to be used at a time, care being taken here as elsewhere that the temperature of the injections be not lower than 90°. Others recommend Iodized Phenol where the mucosa fungosa are present. It is best always to wash out the uterine cavity with warm water before making the injection, and be sure that there is no air in the syringe. The fluid should be injected very slowly, and the patient remain quiet in the recumbent position for some time after. Unless the os be patulous it may be necessary to dilate before making the injection.

The direct application of medicines to the diseased endometrium by means of the applicator, or a swab prepared by carefully wrapping a probe with cotton, is a safer and more effective method, and is the one usually adopted by those who practice local treatment in this disease. The parts being exposed by a Sims' speculum, and the os dilated, if necessary, a cervical speculum is introduced. Through this a cotton-wrapped probe is carefully passed

into the fundus and swept around slowly, to remove the mucus from the cavity. It is then withdrawn and another probe, similarly prepared, and saturated with the medicine to be used, is introduced and gently turned around and pressed against the uterine walls so as to squeeze out the medicine. The instrument and speculum are then withdrawn, and the patient left quietly in bed until the following day, and longer if any discomfort follow the application. Care must be taken that the cotton be firmly twisted on the applicator, so that there may be no risk of its slipping off, and yet its outer layers must remain loose enough to absorb fluid easily and freely. The same medicines may be used as in intra-uterine injections. The use of strong caustics cannot be too severely condemned. Dr. Thomas says (1) "I would advise against the use of strong caustics in endometritis occurring above the os internum, upon the ground that I have not seen them accomplish as much good as the same substance in alterative strength. I would not, in the condition which we are considering, employ the nitrate of silver in solid form, pure chromic acid, or fuming nitric acid."

There are, however, some old-school gynecologists who recommend these substances, and I have myself seen one case of gonorrheal endometritis where a fatal peritonitis resulted from an intra-uterine injection of chromic acid, made by a so-called homeopathic physician. Curetting the endometrium is now a popular method of treatment, it having been established that "after the mechanical removal of the old diseased mucous membrane, a new endometrium of relatively normal functional activity is formed." Hart & Barbour recommend curetting, followed by the application of carbolic acid, "if there be roughness of the endometrium, or if there has been a recent miscarriage or confinement." The operation should not be performed if there be present any active pelvic inflammation. Thomas' dull wire curette (Fig. 67) is the safest and most satisfactory instrument to use. Sims' speculum having been introduced, and the uterus drawn down and held firmly by the volsella, the curette, previously dipped in carbolized oil, is carried into the uterine cavity. The anterior wall is first scraped from the fundus downward, and then the posterior wall is treated in like manner. But slight pressure should be made unless the instrument be felt to slip over the irregularities of the mucous membrane without removing them. The blood and mucus is then carefully wiped away by means of a cotton-wrapped probe, which process is repeated several times if the first is not sufficient. The medicine, either a solution of carbolic acid, tincture of Iodine, Calendula or Hydrastis, is then

1) Diseases of Women, p. 265.

introduced on a cotton-wrapped probe, after which a tampon of glycerine is applied to the os and cervix for twenty-four hours, the patient keeping her bed for at least a week after the operation. Dr. Apostoli has originated a new treatment of endometritis and other pelvic inflammations with electricity, which promises to be of great value. A detailed description of this method of treatment is given in a succeeding chapter, to which the reader is referred.

CHAPTER XIX.

ACUTE METRITIS.

SYNONYMS.—Congestive hypertrophy; inflammation of the uterus.

DEFINITION.—An acute inflammation of the muscular wall of the uterus.

PATHOLOGY.—(1) “The uterus may swell to the size of a goose egg; it is thick, hyperæmic, succulent, almost doughy. The whole substance is tumefied, infiltrated with serum, and hyperæmic, and echymoses are scattered throughout its tissues. Between the muscular fasciculi pus-corpuscles are found, usually only in a small quantity, in some spots more abundantly. The endometrium, as a rule, is also inflamed, and the serous envelope always participates in the change, being either hyperæmic or bathed in pus, or else covered with flocculent deposits, or even thickened.”

ETIOLOGY.—Acute metritis may be of puerperal origin, in which case it results from taking cold, or from an accident during parturition, causing endometritis and the extension to the parenchyma, or any cause which results in an absorption of septic matter.

The non-puerperal variety may be caused by taking cold during menstruation, from gonorrheal infection, excessive and forcible coition, injury during surgical operations, or from the careless use of the sound, as well as from sponge-tents, intra-uterine pessaries, intra-uterine injections, etc.

SYMPTOMS.—Rigors, with high temperature and severe pain, are the chief symptoms. The pain is located in the pelvis or abdomen, or both, and, when the peritoneum is involved, it may shoot all over the abdomen. It is worse from the slightest motion, from coughing, sneezing, or even speaking. Evacuation of the bladder or rectum causes acute pain. At the same time there is a sensation of fullness, heaviness and burning throughout the pelvis. Constipation is usually present at first, but diarrhea, with more or less tenesmus of the rectum and bladder, soon follows. Nausea and vomiting are common symptoms. The menses are either suppressed, if caused by taking cold during menstruation,

1) Schröder; Ziemssen, Vol. X, p. 96.

or they are scanty, or menorrhagia occurs. In the puerperal variety the lochia are suppressed.

Physical examination reveals the vagina to be hot and dry, the uterus swollen and very sensitive, either from external pressure or internal manipulation, the bi-manual examination causing excessive pain.

Under appropriate treatment, the symptoms may disappear within a few days, and the patient be entirely well, but more often chronic metritis is developed, with its usual history; or, rarely, the acute condition may terminate in an abscess, and perforation take place in adjacent organs, or through the abdominal walls. Should rupture occur into the peritoneal cavity, it is almost invariably fatal. Often, after the abscess has run its course, a chronic metritis remains, not infrequently complicated with pelvic cellulitis, especially in cases of gonorrheal origin.

DIAGNOSIS.—The uniform increase in size of the uterus, and the great sensitiveness to touch and motion, together with other physical signs and subjective symptoms above mentioned, will usually determine the presence of parenchymatous inflammation. Metritis is often complicated with endometritis, or with peritonitis and cellulitis, and in such cases it is quite difficult to differentiate, or to decide in which of the tissues the inflammation predominates.

PROGNOSIS.—Acute metritis is always a grave disease, and the gravity increases in proportion to the extent that the peritoneum is implicated. Resolution may take place and the patient make a complete recovery, but chronic metritis is very liable to ensue, or an abscess may occur, and thus life be greatly endangered.

TREATMENT.—The patient should at once be placed in bed and absolute quiet enjoined. Hot fomentations or hot poultices should be placed over the abdomen, and hot water injections should be used persistently. In puerperal cases, where septic poisoning is apparent and it is suspected that some parturient *debris* remains within the uterus, an intra-uterine injection of a weak solution of carbolic acid may be given. The rectum should be kept free by the use of enemata of warm water. In most cases, Aconite is the first remedy indicated, but usually Belladonna or some other remedy is soon required. According to my own experience, after the initial symptoms calling for Aconite have disappeared, Belladonna is indicated in a vast majority of cases, but the application of the remedy must in all instances depend entirely upon the individual symptoms of the case.

SPECIAL INDICATIONS.

ACONITE.—Rigor; hard, full and rapid pulse; hot, dry skin; intense thirst; great restlessness and anxiety, with fear of death. Cases occurring from cold, during parturient period, or menstruation.

ARSENICUM.—Later stages; burning, lancinating pains; drinks often, but little at a time; great restlessness; typhoid symptoms.

BELLADONNA.—Flushed face, throbbing carotids, bounding pulse, high temperature, active delirium, throbbing headache; drowsy, with startings, and inability to go to sleep; abdomen distended and painful, very sensitive to touch; greatly aggravated by the least motion or jar of the bed; cutting pains, or clutching, as if the abdomen were clawed with the finger-nails; lochia suppressed. Most useful in puerperal metritis, but often indicated in non-puerperal.

BRYONIA.—The least motion aggravates her suffering; head aches as if it would split; sitting up causes nausea and fainting; lips and mouth parched; great thirst.

CANTHARIS.—Scanty urine, with violent pains in the bladder; frequent urging and intolerable tenesmus; abdomen greatly distended and tender, with violent burning or cutting pains.

Also consult: *Mercurius*, *Colocynthis*, *Pulsatilla*, *Rhus tox*, *Hepar sulph.*, *Lachesis*, *Nux vomica* and *Sulphur*.

CHAPTER XX.

CHRONIC METRITIS. SUBINVOLUTION.

SYNONYMS.—Chronic parenchymatous metritis; chronic inflammation of the uterus; chronic infarctus; areolar hyperplasia; diffuse proliferation of the connective tissue; diffuse interstitial metritis.

DEFINITION.—The term chronic metritis is the one most often used to designate a morbid process in the parenchyma of the uterus, supposed to be inflammatory, which results in an increased growth of connective tissue.

PATHOLOGY.—There is little uniformity of opinion as to the exact pathology of this condition. This fact accounts for the multiplicity of names which it has received—names which have been based, supposedly, upon its pathology, which, at best, is obscure and not well understood. For this reason it is better to use the term chronic metritis; for while it may not be possible in most cases to trace an inflammatory origin, yet the ultimate tendency of inflammation in most structures is to cause an increase in growth of connective tissue, and that is the chief pathological change found in the disease under consideration, while, if we adopt a name based upon any one pathological state, we are liable to err, owing to our present incomplete knowledge of the subject. The term chronic metritis is the most appropriate one from a clinical standpoint, as it covers a variety of closely connected pathological states, which are possibly of widely different origin, but which present a similar class of symptoms and require similar treatment.

For this reason I have included "Subinvolution of the uterus" under this head, since that term expresses simply an etiological fact, that the increase in growth of connective tissue, which in no way differs from that resulting from inflammation, is the result of the failure of the uterus to return to its normal size and weight after parturition, the condition being "maintained by the process of chronic metritis, that is, by the formation of connective tissue, which takes the place of the fatty-degenerated muscular fibre."

According to Thomas, who adopts the term "areolar hyperplasia," chronic metritis, however produced, is a vice of nutrition engendering hyperplasia of connective tissue as its most striking feature, and, although attended by many of the signs and symp-

toms of inflammation, it in no way partakes of the character of that process.

As to the pathological changes found in chronic metritis, there is, as I have already mentioned, much obscurity and some difference of opinion. The generally accepted views are embraced in a recent article by Dr. Palmer, (1) who recognizes three distinct stages of chronic parenchymatous metritis: (1) Hyperæmia; (2) hyperplasia; (3) sclerosis. The second is a result of the first, and the third is a practical continuance of the second.

At first the uterus is enlarged, heavy, flabby, soft, and hyperæmic. Later on, as a preponderance of the connective tissue results through its proliferation, the organ is found dense and indurated; at the same time it becomes less vascular. Diminished vascularity is brought about by the growth of the intermediate areolar tissue, especially surrounding the blood-vessels, compressing them and cutting off the current of their supply. This, the second stage of the disease, is called hyperplasia. Still later a further change becomes manifest, the result of the former. Advancing proliferation and hyperplasia of the connective tissue renders the parenchyma of the uterus more and more dense and indurated, less and less vascular, until finally a condition is found as described by Klob. The parenchyma on section appears white or whitish-red, deficient in blood-vessels, and its firmness is so increased by contraction and condensation that it creaks under the knife, simulating the hardness of cartilage. The uterus now grows smaller and undergoes atrophy. This is the stage of sclerosis or cirrhosis.

ETIOLOGY.—According to Thomas, “as a very general rule chronic metritis is a consequence of subinvolution,” all other causes becoming comparatively insignificant. He says: “This constitutes the explanation of the fact that so large a number of women with uterine affections refer their illness to child-bearing, and that so many, who are well until that process, remain invalids afterward. Go back to the commencement of all cases of uterine disease, and a very large proportion will date from parturition.”

Subinvolution, then, being the chief etiological factor, it follows that we should enumerate as causes of chronic metritis those conditions which interfere with the normal involution of the uterus. These are—

1. Contusions and lacerations of the cervix;
2. Retention of the products of conception, portions of the placenta, membranes or blood clots;
3. Pelvic inflammations after parturition;
4. Too early rising, after labor or abortion;

1) American System of Gynecology, Mann, p. 601.

5. Non-lactation ;
6. Repeated abortions.

These causes all represent a source of irritation followed by congestion, and inducing persistent hyperæmia. How this is brought about in the first three named, is evident. If the patient gets up too soon it leads to passive congestion, in an enlarged, flabby organ, and thus impedes involution. Non-lactation deprives the uterus of one of its normal stimuli to involution. This also holds good in abortions, where not only is lactation absent, but the patient does not take the same care of herself as after labor at full term. Moreover, after abortions conception often occurs again before involution is complete ; this favors another abortion and consequent subinvolution. Another class of causes are those which produce repeated or habitual congestions of the uterus. These are : Displacements, chronic endometritis, pressure of pelvic or abdominal tumors ; chronic cardiac or hepatic disease ; excessive sexual indulgence, especially when under great excitement ; unsatisfied or abnormally satisfied sexual desire (masturbation or intercourse with impotent men, or withdrawing to prevent conception, or the use of condoms and similar devices) ; prolonged constipation ; prolonged standing ; the wearing of tight or heavy clothing around the waist.

Some of these, especially the first two named, might under some circumstances, be included under the group first named, as tending to retard normal involution after delivery.

SYMPTOMS.—The symptoms of chronic metritis may slowly succeed those of an acute attack, but in a great majority of cases they occur in a woman who has before been in good health, but who gets up from a confinement feeling poorly. Probably she has left her bed too soon, or allowed herself to work too hard soon after getting up. The first symptoms experienced are weakness and heaviness in the limbs, sacral and abdominal pains, mostly described as a backache and a feeling of weight or dragging in the pelvis ; the lochial discharge is increased and does not cease at the usual time, but merges into a leucorrhea, the extent of which depends largely upon the extent to which the endometrium is involved ; constipation is usually present and sometimes irregular hemorrhages occur. Several days before menstruation, and continuing during that process, the patient may complain of a dull, heavy pain, and feel so weak and languid that she can scarcely leave her bed, and, not infrequently, especially if trying to go about, she is seized with paroxysms of faintness and hysterical attacks. Sometimes patients feel better after the flow, especially if it has been profuse, and in other cases they feel at their best at about the middle of the inter-menstrual period, the uterus being

at that time free from congestion. The inter-menstrual symptoms, as a rule, are not intense, but only sufficiently severe to prevent the patient from enjoying perfect health, without being positively ill, while the monthly or still more frequent exacerbations, render her condition extremely distressing and intolerable. After a time there is pressure on the bladder and rectum, causing hemorrhages and violent rectal and vesical tenesmus. The digestion becomes more or less impaired, nutrition suffers, obstinate neuralgia and headaches occur frequently, the nervous disturbances become more numerous, and only slight influences are required to excite marked exacerbations.

Often symptoms similar to those of pregnancy are present, such as nausea and vomiting, enlargement of the breasts, and darkening of the areolæ about the nipple.

All the symptoms are more marked when there is any marked displacement, and they are less severe when the disease is confined to the cervix and does not extend to the fundus. Pelvic inflammations not infrequently arise and render the condition more obscure and the treatment more complicated. Sterility is a frequent but not necessary consequence, but if conception does take place abortion is liable to occur about the fourth or fifth month.

Physical examination reveals the uterus uniformly enlarged, and always sensitive, though not in a high degree, both the volume of the uterus and its sensitiveness being markedly increased during an acute exacerbation. Sometimes the enlarged body may be felt lying retroflexed against the rectum, but if not it is usually readily felt through the abdominal walls by the bi-manual manipulation. During the first stage the organ is not firm, but rather soft and doughy, while in the second stage it becomes more hard and dense. In cases of long standing the cervix is hard, and often quite irregular, presenting somewhat the appearance of carcinoma. The os is patulous and the lips thick, often presenting erosions consequent upon endometric complications.

DIAGNOSIS.—Chronic metritis may be mistaken for pregnancy, as the conditions present so many symptoms in common, but in the former, menstruation, though irregular, rarely ceases altogether, and the uterus is distinctly sensitive to touch, which is not the case in pregnancy. Should conception occur in the course of chronic metritis, the diagnosis is exceptionally difficult. Interstitial and submucous fibroids may give trouble in diagnosis, and it may become necessary to dilate the cervix, in order to ascertain by digital examination whether or not the enlargement is confined to but one wall of the uterus; but usually the history of the case and the sensitiveness of the uterus will establish the presence of an inflammatory process, though a fibroid may be found to co-exist.

PROGNOSIS.—The life of the patient is not directly endangered, but the chances of complete recovery are, in most cases, quite limited. Often the disease will last for years, periods of tolerable health alternating with those of violent distress and suffering. Very rarely does the disease terminate before the menopause, though in some cases the third stage, that of induration, sets in earlier, the exacerbations disappear, and the patient feels comparatively well. Frequently the patient's sufferings are largely due to the complications that exist rather than to the original disease. Those cases which result from displacements are more amenable to treatment, the removal of the exciting cause producing rapid and permanent recovery. The disease is unquestionably one which obstinately resists treatment, and the prognosis of a complete recovery before the menopause quite unfavorable, yet much may be done to diminish the patient's sufferings, and where she can be brought to rigidly observe hygienic rules, avoid exposure, undue exercise during the menstrual period, abstain from frequent sexual indulgence, and be fortunate enough to escape conception and consequent abortion, I am convinced that homeopathic remedies conjoined with appropriate auxiliary treatment will, in many instances, effect a cure, though of course it is not to be understood that a *restitutio in integrum* is probable, or that the tendency to relapse can be entirely overcome.

TREATMENT.—Prophylactic measures are of great importance. Subinvolution is often the result of improper care during the puerperium. The patient should not be allowed to leave her bed too soon, or to devote herself to household cares until involution is completed. Any obvious causes, such as endometritis, lacerated cervix, or displacements, should receive immediate attention. During the menstrual period, and at other times when exacerbations are present, the patient should keep her bed, and absolute rest should be enjoined. At other times she may continue her usual household duties, being careful to avoid all active exertion, especially such as is most likely to bring about contraction of the abdominal muscles or jar of the pelvic viscera—hard labor, rough riding, jumping, lifting, etc. Gentle exercise on foot in the open air and sunshine is very desirable, but should never be carried to the point of actual fatigue. It is a mistake to allow a woman with this disease to remain continually in bed, as such a course would interfere with the processes of nutrition and result in positive injury. The diet should be simple and nourishing, the coarser foods which tend to increase the quantity of fecal matter being avoided, preference being had for an animal and fruit diet. The bowels should be kept regular, not only by appropriate diet, but also by enforced regularity in evacuations, and, if necessary, the use of

appropriate mineral waters, but cathartic medicines should never be employed. Physical rest of the uterus, as far as the sexual relations are concerned, should be advised, though no doubt in those women in whom there is strong sexual desire, a moderate indulgence is preferable to absolute abstinence.

Hot water vaginal injections should be used every evening before retiring.

The local treatment of chronic metritis is very unsatisfactory, and benefit must be expected mostly from the measures already mentioned and the use of the appropriate internal remedies. Local depletions, scarifications, blisters, cauterizations, etc., are, to my mind, not only useless, but in many cases positively harmful, and not to be thought of. This statement does not include Dr. Apostoli's new method of treatment by intra-uterine chemical galvano-cauterizations, which is described in a subsequent chapter, and which promises to become a valuable addition to gynecological therapeutics. (See Chapter XXI.) I have had several patients who obtained prompt temporary relief, at least, from the daily application of the glycerine plug. In some instances I have applied with benefit a solution of equal parts of iodine and glycerine to the cervix and vaginal roofs.

S. Wier Mitchell's method of treatment by rest, feeding, massage and electricity, has given good results in chronic metritis, and is highly spoken of by Playfair and other distinguished gynecologists. It has the advantage of doing away with the objectionable methods of treatment usually adopted by the old school, and recommends itself at once as practical and efficient, especially in those cases where the nutrition has suffered and the nervous system has become depressed and weakened, as shown by emaciation, digestive derangements, and nervous debility. It consists chiefly in—

1. Removing the patient from her old surroundings;
2. Absolute rest in bed;
3. Treatment without narcotics or cathartics;
4. A systematic diet, consisting chiefly of large quantities of meat, eggs and milk;
5. The energetic use of massage to strengthen the muscles and increase their activity;
6. The application of the Faradic current daily, to cause muscular action and act as a tonic.

In regard to this method of treatment, Dr. Winckel says (1): "I have treated many patients by this plan, and can assure the reader that the results are very favorable. It does not always

1) Diseases of Women, Parvln, p. 462.

render local treatment superfluous, but it has a happy effect so far as constipation is concerned, and with the restored circulation the uterus often perceptibly diminishes in size; the secretions are likewise profuse, and local treatment is not so essential as formerly. The patient finally has a suitable diet substituted for the host of medicines, the hysterical symptoms gradually disappear, the cold hands and feet grow warm, and her former blank existence develops new life."

THERAPEUTICS.

The subjective symptoms of chronic metritis, associated, as the disease usually is, with so many varied complications, are so protean that its therapeutics can only be established by a study of each individual case on its own merits, and a remedy selected to cover the totality of the symptoms presented. At the time of the acute exacerbations, the case may demand *Belladonna*, *Gelsemium*, *Cimicifuga*, *Pulsatilla*, *Viburnum op.*, *Senecio*, *Sabina*. The remedies most often useful in the course of the disease are *Arsenicum*, *Arsenic iod.*, *Aurum*, *Calcaria carb.*, *Conium*, *Ferrum*, *Ignatia*, *Iodium*, *Kali iod.*, *Phosphorus*, *Lachesis*, *Lilium tig.*, *Lycopodium*, *Mercurius iod.*, *Natrum mur.*, *Nux vomica*, *Phytolacca*, *Pulsatilla*, *Platinum*, *Sepia*, *Sulphur*, *Ustilago maidis*.

ARSENICUM.—Burning or lancinating pains in the uterine region; great restlessness and anxiety; pains in region of right ovary, sometimes extending into the thigh, which feels lame; great weakness and prostration; pale, cachectic look.

ARSENICUM IOD.—This remedy is more useful where, with the above symptoms, the uterus is considerably enlarged and indurated.

BELLADONNA.—More useful in acute metritis, and during the acute exacerbations of the chronic variety. Abdomen distended and sensitive to touch, or jarring; heat, throbbing, burning and weight in uterine region, with pressure downward; attacks of colic, as if the uterus were seized with the finger-nails; throbbing headache, flushed face, even delirium; menorrhagia, blood red and hot.

CALCAREA CARB.—Strumous diathesis; leucophlegmatic temperament; menses too early, too long and too profuse; leucorrhea like milk; abdomen distended and hard; profuse sweat from slightest exertion; feet cold and damp; acidity of the stomach; feels worse after coition. If with these symptoms the uterus is enlarged and greatly indurated, *Calcaria iodatum* is the better remedy.

CONIUM.—Induration of the uterus; lancinating pains; soreness and swelling of the breasts preceding menses; milky, acrid leucorrhea.

CIMICIFUGA.—In nervous, hysterical women; menses irregular or suppressed; pains in uterine region shoot from side to side; bearing down in uterine region and small of back; limbs feel heavy and torpid; severe reflex pains in head and eyeballs.

GELSEMIUM.—Symptoms always worse during the menses; severe, sharp, labor-like pains in the uterine region, extending to back and hips; trembling and weakness; relaxation and prostration of the whole muscular system; languor; aching in the limbs.

IGNATIA.—Hysterical; frequent sighing; gloomy, seems weighed down by imaginary grief and sorrow; sensation of weakness and sinking in pit of stomach; menstrual blood black, clotted and of putrid odor.

IODIUM.—Induration of the uterus; metrorrhagia, renewed after every stool; acrid leucorrhea, mammæ dwindle away and become flabby; sallow complexion; local or general emaciation, especially in scrofulous women.

KALI IODATUM.—Especially in mercurial or syphilitic subjects; tendency to ozæna and to diseases of the bones and glands; always worse at night.

LACHESIS.—Abdomen distended, hot, sensitive and painful; pains like a knife thrust in uterus, relieved by a flow of blood; uterus will not bear contact even of bed clothes, which cause uneasiness; metrorrhagia, blood black; great exhaustion; worse after sleep.

LILIUM TIG.—Subinvolution; displacements; bearing down, with sensation of heavy weight and pressure in uterine region; sharp pains in ovarian region; reflex heart symptoms; great depression of spirits.

PULSATILLA.—Heavy pressive pain in abdomen and small of back, especially during menses; menses suppressed or delayed from getting the feet wet; leucorrhea like cream or milk; characteristic temperament; symptoms ever changing; dyspepsia; always better in the open air.

SABINA.—Subinvolution after abortion; hemorrhage from the uterus in paroxysms, worse from motion; blood dark and clotted; pain from back to pubes.

SECALE.—Subinvolution; abdomen distended and tympanitic; uterine hemorrhage, worse from least motion; discharge black, fluid and very fetid; suppressed lochia followed by metritis; extreme debility, prostration and restlessness.

SEPIA.—Venous congestion of the uterus and adjacent tissues; abdomen distended and sensitive; sensation of bearing down, feels that she must cross the limbs to prevent protrusion of the parts;

prolapsus uteri; leucorrhea, yellow like milk, excoriating, worse before the menses; easily fatigued; sensitive to cold air; face pale, yellow earthy color; yellow saddle across the nose.

SULPHUR.—Most useful as an intercurrent remedy in long-standing cases occurring in scrofulous subjects.

CHAPTER XXI.

TREATMENT OF CHRONIC METRITIS, ENDOMETRITIS AND PERI-UTERINE INFLAMMATION BY ELECTRICITY.

THE attention of the profession has lately been attracted to the value of electricity in the treatment of pelvic inflammations by Dr. Apostoli, of Paris, whose monograph (1) has recently been translated and published in this country, and who has still more recently furnished a paper on "A New Treatment by Electricity of Peri-uterine Inflammation." (2)

The method of treatment practiced by Dr. Apostoli is wholly original with himself, and is concisely set forth in the monograph and paper above mentioned, from which I shall quote, and to which the reader is referred for more extensive information. In the first place, Dr. Apostoli very properly remarks that "notwithstanding the variety of names which have been given to peri-uterine inflammations, sometimes fashioned only according to the inventive ingenuity of authors, and sometimes only indicating the localization, they all mean pretty much the same thing, except as regards the point of intensity.

"Whether it be called a peritonitis, a parametritis, a phlegmon, or a cellulitis, we have always to deal with a peri-uterine inflammation, either limited to the cellular tissue only, or involving all that is included in the pelvic folds of the peritoneum. Throughout, the therapeutical indications are much the same, and it is of them only I wish to speak."

His treatment is, therefore, practically the same in all forms of pelvic inflammation, according to the stages of the disease—acute, sub-acute or chronic.

In his monograph, Dr. Apostoli first explains the five instruments which are required:

1. "ABOVE ALL, A GOOD GALVANOMETER."—The reasons are given at length why this requirement is of the utmost importance. The Galvanometer shows the passage of the current and its slightest variations of intensity, and gives the exact measure of electric outflow—"it doses and weighs, so to speak, the electric current." No correct idea can be had of the quantity of electric

1) On a New Treatment of Chronic Metritis, and Especially of Endometritis, with Intra-uterine Chemical Galvano-Cauterizations. Detroit: George S. Davis. 1888.

2) British Medical Journal. See Medical Era, April, 1888, p. 114.

current by simply estimating the number of cells employed, as these invariably differ in their output, and the same cell may differ at different times, according as it is fresh or worn out, and from other circumstances.

2. **THE BATTERY.**—Here Dr. Apostoli recommends the Leclanche cell, but any other one will answer. The object is to select a battery “which gives the least trouble, and which, while giving a great outflow, lasts the longest possible time without having to be recharged.” He advises using large cells. An average of about twenty large Leclanche elements is required to furnish the intensity—from 150 to 250 milliamperes—necessary for the operation. For a portable battery none has yet been devised that fully answers the purpose, but the bisulphate of mercury battery comes nearest to the requirements.

3. **INTRA-UTERINE EXCITER.**—This consists of a platinum sound “held by a long handle, into the centre of which it should glide. It must be about ten centimeters in length, furnished with a sheath, and made of some good non-conductor, so as to protect the sensitive vagina from contact with the electrode; it may be made of glass or rubber, but the best material is celluloid. Its diameter should be such that it will slide easily over the sound, so as to expose as little or much of the latter as the operator may desire.”

An ordinary metallic sound would answer, were it not that the positive pole would cause it to become corroded. Dr. Stevenson uses a copper wire, insulated by gum elastic, to the end of which is welded a piece of platinum of about an inch in length. This makes a more flexible instrument, is less expensive, and is probably equally as useful as that recommended by Dr. Apostoli.

4. **CUTANEOUS ELECTRODE OF CLAY.**—This new electrode, designed by Dr. Apostoli, renders the cutaneous pole innocuous, and thus the current is made tolerable to the patient in spite of the enormity of the dose. It consists of a piece of good plastic clay about ten inches by five, placed upon the abdominal parietes, in which is embedded a flat metal plate, about five inches by three, to which one of the rheophores is attached.

5. **THE RHEOPHORES.**—These are the cords “which serve to carry the current, the one from the battery to the uterine sound, and the other from the battery to the clay. These cords are generally formed of several metallic wires, placed together and covered with silk or rubber, and should be sufficiently resisting, on the other hand, not to be easily broken. It is their breaking, in fact, which is the most common accident, and generally happens when least expected, and against which I must put you on your guard.”

Before detailing Dr. Apostoli's method of procedure in chronic inflammations, I will first quote his general lines of treatment for the acute and sub-acute stages of peri-uterine inflammation.

1. ACUTE STAGE.—Dr. Apostoli Faradizes every woman, even when under an acute attack of inflammation, observing, however, the following practical conditions:

“(a) I proscribe every Faradization that would cause the least pain, and expressly that of quantity, engendered by the bobbin with short and thick wire. (b) I use for such cases the bobbin with long and thin wire, from which I obtain a current of tension, on account of its specially anodyne effects. (c) I begin with a simple vaginal application, by means of a large bipolar electrode, the point of which is placed against the inflamed part. (d) I only employ a current easily bearable, so as to cause no suffering or any excitement of the patient, as this would insure an entire failure of the treatment. (e) All the success of this medication depends upon making the first sittings sedative, so that they may serve as a prelude to more active measures; and the Faradization will only become hyposthenic on the double condition of its low intensity and its long duration. (f) Each sitting should last five, ten, fifteen, twenty or twenty-five minutes, as may be required, and should not terminate before the patient spontaneously declares that she is better and suffers less. (g) It is necessary to reinforce what has been said, by dogmatically averring that no success will come out of this treatment unless it is managed, not only without violence, but with extreme gentleness. (h) There may be one or two sittings each day, as may be wanted, for lowering the febrile action, allaying pain, and bringing about what is called the sub-acute state of the inflammation. (i) Every Faradization should be preceded and followed by a vaginal irrigation with the sublimate solution, and all the sounds should be scrupulously disinfected.

“2. SUB-ACUTE STAGE.—As soon as the sound can be introduced into the uterus without much pain and without danger, I consider this stage to have set in, and it requires some alteration in the treatment. Intra-uterine medication is now necessary, its force being increased gradually. It is here that we can advantageously combine Faradizations with the continuous current.

“a. I recommend, first, bi-uterine Faradization, because we desire to prolong in the uterus the same anodyne effects that we sought for in the vagina. We must, therefore, Faradize the uterine cavity.

“The current must always be that of tension. The intensity is increased by advancing the bobbin, and this must be done as softly as possible, without any jerking, till we reach the limits of

personal tolerance. Every day the current may be repeated, until an evident amendment is taking place and the inflammation is giving way. This will be the indication for still more decided action and we must call to our aid the constant galvanic current.

“6. The use of the intra-uterine galvanic current, in small but gradually increasing doses, is the second part of the treatment which we have to offer to the patient, with a view to more rapid progress in the cure. Here the action is purely chemical, dynamic, and stimulant, and intended to stop any tendency to suppuration, and to accelerate the absorption of the morbid deposits.

“We must begin with short sittings of only three or four minutes, with an intensity of not more than twenty to forty milliamperes. After a while, both doses and time may be augmented, and we have no better guide to trust than the ease with which the patient can support this intra-uterine cauterization. The most exact care must be taken not to transgress any of the rules I have laid down for the safe performance of the operation, never omitting the diligent observance of every antiseptic precaution.

“One or two sittings a week may be made, regulating the intervals by the strength and condition of the patient. Rest in bed after each operation must be enforced.

“The early cauterizations should be with the positive pole, as it occasions less congestion than the negative. The negative cauterizations, having a greater derivative power, must, however, be brought to bear as soon as we can make out, by the way in which the action of the positive pole is tolerated, that they can be aptly and beneficially employed.

“The surgeon must never lose sight of the fact that, with his patient on the confines of an acute stage of disease, he is handling a curative agent which, while capable of rendering great service, may also, by indiscreet and inexperienced usage, do her greivous mischief.

“To sum up this part of the subject: these two stages of acute and sub-acute perimetritis are difficult to overcome, and our great effort must be to get rid of them, and to place the patient in that chronic stage in which our action will be more clear and definite.

“3. CHRONIC STAGE.—However excusable a certain amount of timidity and indecision may be in treating the acute and sub-acute conditions of this disease, there is nothing to hold back the surgeon from following my recommendation to act boldly, and even heroically, when he comes to encounter the chronic stage. Here he must, judiciously but unhesitatingly, push the intra-uterine galvano-cauterization to its highest pitch, and then superpose the vaginal chemical galvano-punctures, negative and monopolar.”

A short summary of the rules for manipulating in the operation of galvano-puncture may be found in the chapter on "The Treatment of Fibroids by Electricity."

It now remains only to give a brief summary of the method of conducting chemical galvano-cauterizations.

A—PREPARATORY PRECAUTIONS.

1. Dr. Apostoli insists on carrying out "a good and thorough antiseptis."

2. "Examine all the couples of the battery, in order to see that they work well, and thus to avoid any interruption during the course of the sitting."

The elements should be turned on cup by cup, so as not to cause too sharp and sudden a transition, thus preventing violent shocks to the patient. "There is always a slight shock, it is true, but it is reduced to a minimum. If, on the contrary, the collector is divided two by two, three by three, or even four by four, the shock becomes greater with this transition, and the patient finds herself in the position of one who ascends or descends easily a flight of stairs, step by step, but who, when she goes up two or three steps at a time, finds it much more difficult."

3. Examine the galvanometer and "make sure that the needle oscillates in every direction without striking, and that it is perfectly suspended."

4. "The battery, collector and galvanometer having been tested, we place them near the operating bed or sofa, so that, without moving, you can on one side stretch out the hand and easily move the handles of the collector, and on the other hand be able to see and follow easily during the whole operation the oscillations of the galvanometer. You adjust the needle, or, rather, you turn the multiplying scale until the zero on the compass corresponds exactly with the needle."

5. "Pass the hysterometer through the flame and then you plunge it, handle and all, into a strong carbolic solution, in order to make sure of its being perfectly a septic."

"Arrange the length of the intra-uterine sound, in drawing it out from the handle, according to the previously determined or the probable length of the uterus. Then cover the sound with an insulating sheath of celluloid."

6. "Attach the rheophores, or, better still, one rheophore first, to the metallic plate which lies upon the clay."

7. "See if the clay is in the proper condition for humidity, and especially if it thoroughly moistens the tarlatan."

B—PRELIMINARIES.

1. Explain to the patient that the operation is harmless and

perfectly bearable. It "is necessary never to begin, especially the first time, before obtaining her complete acquiescence, in order that she may relax all her muscles and avoid all movements that might be hurtful or dangerous." She must remove her corsets and loosen her skirts, in order that her breathing may be free and easy, and that the abdomen may be completely exposed. The operation may be performed at the office on an ordinary operating table. If at the patient's house, she should lie across a bed, "the feet resting on two chairs, taking good care, however, in both cases, that the buttocks project completely beyond the edge, in order to give perfect freedom to the hand which introduces and holds the intra-uterine sound.

"Once placed in position, the woman must remain absolutely immovable, and you must remind her that, no matter what happens, she must not move, but that on the slightest sign, if she desires, you will stop the operation; she will thus be more satisfied, she will breathe easier, and will aid any manœuvre required for the introduction of the sound."

2. "Quickly place the clay on the belly, above the pubis, and away from the hairs, after having warned the patient that it is always cold, but that this disagreeable feeling will soon disappear. Cover it with a dry cloth, such as a folded towel, for instance, on which the woman is to place her two open hands side by side, so that she may exercise a slight pressure on the clay, in order to render it more uniformly and completely applied to the skin.

"Never apply the clay to the skin without having first determined that the epidermis is healthy, and that there are no pimples or abrasions, nor any wounds of any kind, no matter how small."

3. The sound is now introduced. "This is the most important stage, and exacts the greatest care and practice. A great part of the operative success depends on its good execution." It should be handled with extreme gentleness, and only the slightest possible force used; on the slightest resistance the sound should be withdrawn, and another attempt made. Dr. Apostoli rejects the use of the speculum entirely. The left hand holds and fixes the handle, at the same time giving it a slight forward movement; "the other hand, with the index finger in the vagina and adjacent to the posterior lip, following it, and guiding it, when necessary, in all its movements laterally and forward, straightening and correcting its course when it goes wrong."

4. "Once the sound is well introduced into the whole extent of the uterus, you must take care that the vagina is well protected by the isolating covering of celluloid, and for that, it ought to touch at one end of the neck of the uterus and at the other project

from the vulva. During the operation, we should not cease to be careful of this, for if it should become all at once and suddenly painful, you will generally find that it is for want of watching the handle, which has slid forward, and which no longer protects the vagina in its entirety."

5. "Attach the rheophore to the intra-uterine exciter, taking care to do so sufficiently firmly that it may not become detached during the seance, and thus cause a shock, which would result from the interruption of the current."

C—THE OPERATION.

This is divided by Dr. Apostoli into three stages, the initial stage, the middle stage, and the end.

1. *The initial stage.*

(A) "You must not begin to turn on the current until all pain or sensibility resulting from the passage of the sound shall have disappeared. A few seconds of waiting are sometimes necessary for this purpose.

(B) "This done, the hand which holds the sound steady will move no more ; in order to give it more security it is better to leave the conducting finger in the vagina, where, if we are sufficiently sure of ourselves, we hold the sound by the handle ; the dorsal surface of the handle will rest against the internal surface of the corresponding thigh of the patient.

(C) "You will now turn your eye toward the compass to see how it answers to the passage of the current, and at the same time you must not lose from your sight the countenance of the patient, which will warn you of all the sensations she feels.

(D) "The hand which remains free should be placed on that handle of the collector which corresponds to the positive pole, as the operator desires it ; for the characteristic of the positive pole is that it always belongs to the handle which is in motion or which is at the highest figure, while the handle which remains stationary, or is at zero, or at a figure lower than that of the handle which moves, belongs to the negative pole, according to the method of construction of Gaiffe.

(E) "You will then commence slowly, very slowly, to turn on the cells, especially if it is the first operation you have undertaken, or if you are not acquainted with the patient. At first you will go to twenty or thirty milli amperes. Then proceed to fifty. By this time you will have gained, what it is very important to do, the confidence of the patient, who will soon find out of her own accord that electricity does not cause much pain. You will then reach seventy, eighty or a hundred milliamperes, and it is better for the first time not to go beyond this figure.

(F) "It is therefore important never to make the patient suffer too much and never to inflict more pain than is bearable. This is the true criterion which should fix the limit of the dose."

2. *The middle stage.*

(A) "Generally a few seconds suffice to apply to the uterus in an ordinary operation the maximum dose desired, but with very nervous or very hysterical women, and especially when we operate for the first time, we must take care to wait one or, if necessary, two minutes, to arrive at the maximum dose which they can bear.

(B) "The point that we can reach will generally be 100 milliamperes at the first sitting; during the others we may try to raise it to 150 and even 200. We can, if necessary, when a serious case requires it, reach 250. The maximum figure once obtained, which differs, I repeat, according to the patient, we will keep at the same level during a period of between five and ten minutes, but on an average of five minutes.

(C) "The variations that should take place in the dose and the duration of the operation, are justified by this fact, namely: That in the first place all women do not support electricity equally well, and besides they each require a different intensity according to the gravity and previous duration of the disease; thus it is advisable in a difficult case of severe hemorrhage with marked fungous endometritis, to prolong the application to the maximum possible point of toleration, which might be as much as ten minutes; with other persons, on the contrary, very hysterical and nervous, and easily enervated by the slightest pain, a sitting of three or four minutes will be as much as they can bear.

(D) "There is an important precaution which you must take during the sitting, and which concerns the method of holding the sound; it is necessary to hold all the intra-uterine portion always applied against the uterine wall and as far as possible to put it successively in contact with each of them, anterior, posterior and lateral, in order to disseminate and equalize in this manner its caustic action, and to render it as efficacious as possible.

(E) "One thing it is important to know, and this is to understand the oscillations which take place in the needle during this period, while the number of cells in use remains the same.

"In certain patients, who have a very resisting skin, we must not be surprised to see the deviation of the needle become greater, which bears witness to the increasing electric intensity or outflow, which increases because the current passes through the epidermis, which has taken a certain time to become softened and to allow itself to be penetrated. Once having reached the summit of its course, the needle generally becomes stationary, or moves at least but slightly, and thus proves by its greater or less fixation, that the

current once having been well established circulates in an almost continuous and identical manner."

3. *The End.*

(A) "The same precautions, which I have just advised for the application of the current, should be always rigorously applied in order to suspend it. You must stop gradually couple by couple, and never suddenly, in order to avoid shock and painful contraction of the uterus or abdominal wall which would follow.

(B) "When must you finish the sitting? I have just said that two factors should enter into serious consideration. The object to be obtained and the sensibility of the subject.

"If the woman tolerates it well, and bears the current without complaining, the duration, according to the therapeutical object in view, should be from five to eight minutes, and even ten minutes. If she does not tolerate it, but complains loudly, threatens to move and becomes agitated, you must know that you should stop. There is every reason to believe that the next sitting will be better borne, either because the motion of the first beginning will be less, or because the uterus itself will not be so irritable.

(C) "If the same intolerance were manifested at the following sitting, you would have reason to suspect a peri-uterine cellulitis, which had been overlooked and in the presence of which you must stop, or it may be an extraordinary uterine susceptibility, as I have seen in certain cases of hysteria, rare, it is true, which have compelled me to stop my interference at a dose of thirty or fifty milliamperes."

(D) Here Dr. Apostoli explains why it is that when the handle of the collector has been brought back to zero, the needle of the galvanometer passes a little beyond zero, showing a slight current, but sufficient for the patient to recognize, so that she may ask: "Are you beginning again?"

(E) The sound is then very carefully and slowly withdrawn, after which the clay which adheres to the abdomen is removed.

(F) "You then wash out the vagina again with the same antiseptic solution, and you leave in there a tampon of iodoform gauze, the use of which has a double object; first, to continue the antiseptic during the interval between the sittings, and secondly, to put a certain amount of impediment in the way of coition, which is very important."

D—AFTER THE OPERATION.

"The instructions which you should give to the patient who has just been treated are of the very greatest importance, for on their being well executed the whole success of the operation depends.

(A) "If we desire that the treatment should bear its full fruits it is absolutely necessary that the patient should lie down at full length during a time varying from one to several hours.

"If the operation has been performed in the doctor's office, the patient should only go home as late as possible after the colics which follow the cauterization shall have partly disappeared. She should avoid all fatigue and rapid movements, and you must repeat to her that the forgetting of these instructions may expose her to a serious inflammation (such as perimetritis) with all its accompanying miseries.

(B) "You should always warn the patient of the uterine colics, which are generally in proportion to the intensity of the operation which she has undergone. Frequently the post-operative period is even more painful than the operation itself. The woman should not be subjected to any surprises ; and therefore it is better to tell her beforehand what she may expect.

(C) "You will tell her that a sanguineous discharge may appear in the course of the evening as a result of what she has just gone through, a discharge which is not severe and which is generally stopped of its own accord, by rest, without any treatment.

(D) "The following days she may also have a sero-purulent discharge which depends upon the same cause, and which only requires antiseptic vaginal injections every night and morning.

(E) "You must formally forbid all sexual intercourse that night and the following one ; it would be even good to suspend all conjugal relations during the whole course of the treatment in order to avoid pregnancy, which, if it came on prior to the operation, might result in an almost fatal abortion.

(F) "All the discomforts whatsoever, which may be felt, are generally tolerable, and rest is, without exception, the best way of diminishing them ; they disappear of themselves the same evening, or, perhaps, the following day. In cases, however, where the pain is too great, you may order the application of a large emollient poultice on the belly, which will diminish to a certain extent the pain following the application."

As regards the number of sittings required Dr. Apostoli says : "In one case, fresh and easily curable, from three to five sittings will be sufficient.

"In another, older and more rebellious, ten to fifteen will be necessary.

"A third, exceptionally, may require twenty to thirty applications.

"It is the old, chronic, indurated form of metritis with slow and perverted circulation which especially demands a long, labori-

ous treatment. A chronic disease requires a chronic treatment, and we will be only too happy to see, in a disease reputed incurable, our efforts often (I do not say always) crowned with success.

“The treatment should not stop until, on the one hand, all hemorrhage, pain and other disorders have ceased, and the patient declares herself symptomatically cured; menstruation will have gained its regular and easy rhythm; walking will be easy; all the functions will be well performed. On the other hand, we must obtain the anatomical confirmation of this clinical condition of which the patient is the best judge; we must by touch, aided by the other means of exploration, establish the disappearance, or at least the diminution, of all previous disorders; for if the disease is symptomatically curable, we must sometimes declare ourselves satisfied with only a partial anatomical retrogression; if any displacing of the uterus, if any light pressure on the uterine walls does not awaken any appreciable sensibility, there is every chance that the organ is well and that the woman is cured.”

It is best to “complete the cure by several supplementary sittings, destined to bring it to a close and to give it a condition of stability.”

It should also be mentioned that Dr. Apostoli treats those cases where there is actual or threatened suppuration, by using the negative galvano-puncture, forming an eschar, opening up a sinus, and directing the exit of the pus to the nearest point of the vagina, which he says “we can do at will, when it is most fit to do it, and in the most convenient way.

“We have, then, in all the galvano-puncture, an effective means of arresting an inflammation, and of dispersing an inflammatory deposit. Or, we may use it as a sure and direct way of opening a profound and ready formed collection of pus. No plan of setting up a vaginal drainage, controllable as to amount and duration, can be more simple; and this we may associate with any local and antiseptic treatment that may be desirable.”

There are, of course, many points of interest connected with this new and valuable addition to gynecological therapeutics which cannot be mentioned within the limits of a general treatise, for which the reader is referred to Dr. Apostoli's publications.

CHAPTER XXII.

DISPLACEMENTS OF THE UTERUS.

DEFINITION.—This comprehends any persistent or permanent change in the location or position of the uterus. Transient displacements, resulting from such causes as violent straining, coughing, or an over-filled bladder, are physiological, but when the organ fails to return to its normal position after such physiological migrations, or after dislocation resulting from any cause, then the condition is pathological and constitutes a displacement. In order to understand the causes and pathology of displacements of the uterus, a previous knowledge of the anatomy and physiology of the uterus and its supports is essential, for which the reader is referred to Chapter I.

VARIETIES.—The various forms of displacement are known as (1) Ascent, the uterus being dragged upward; (2) Descent, or Prolapsus, the uterus being depressed downward; (3) Anteversion, tilted forward; (4) Retroversion, tilted backward; (5) Lateroversion, tilted laterally; (6) Anteflexion, bent on itself forward; (7) Retroflexion, bent on itself backward; (8) Lateroflexion, bent on itself laterally; (9) Inversion, the uterus being turned inside out.

ETIOLOGY.—Displacements may, in general, be produced by—

1. Any cause increasing the weight of the uterus;
2. Any cause weakening the supports of the uterus;
3. Any cause producing undue pressure from above;
4. Any cause producing undue traction from below.

1. **CAUSES INCREASING THE WEIGHT OF THE UTERUS.**—Congestion; chronic metritis; subinvolution; tumors of the uterus; pregnancy.

2. **CAUSES WEAKENING THE SUPPORTS OF THE UTERUS.**—Ruptured perineum; destruction of the pelvic fascia; relaxed vagina; stretching of the uterine ligaments; lack of tone in uterus or appendages; absorption of pelvic fat and connective tissue.

3. **CAUSES PRODUCING UNDUE PRESSURE FROM ABOVE.**—Great muscular efforts; tight clothing, or heavy clothing supported from the waist; abdominal growths or exudations; accumulations of feces or urine; straining at stool; severe chronic cough; sudden heavy fall.

4. **CAUSES PRODUCING UNDUE TRACTION FROM BELOW.**—Prolapsus of the vagina, bladder or rectum; lymph deposits;

cicatrices in vaginal walls; uterine polypi; operations on the uterus.

These causes will be more fully considered in connection with the etiology of the respective varieties.

1. ASCENT.

DEFINITION.—An elevation of the uterus above its normal location.

ETIOLOGY.—Ascent of the uterus takes place when pregnancy or a tumor enlarges the uterine body so that there is not sufficient room for it within the pelvis; or when a tumor occurs in the pelvis below the level of the uterus, or the vagina becomes filled with retained menstrual fluid, or the rectum or bladder become distended, producing pressure from below upward. Shortening of the utero-sacral ligaments, which result from inflammation, may also draw up the uterus, but ante flexion is the usual consequence of this condition. Ascent of the uterus is never a primary disease, and is only of interest as it points to other lesions of which it is only an accompaniment.

2. DESCENT OR PROLAPSUS OF THE UTERUS.

SYNONYM.—Falling of the womb.

DEFINITION.—A downward displacement of the uterus, which also, necessarily, includes a concurrent descent of the vesico-and recto-vaginal walls—the bladder, the urethra and the rectum. For this reason, Dr. Hart suggests the term “sacro-pubic hernia,” rather than prolapsus of the uterus; while Hart and Barbour treat the condition under the head of “displacements of the pelvic floor,” rather than of uterine displacements.

VARIETIES.—Prolapsus may be partial or complete, the former varying in degree from a slight, yet perceptible, settling of the uterus to cases in which the os presents at the vulva. When a part or the whole of the organ extends from the vulva, the prolapsus is said to be complete, entire extrusion of the uterus being called procidentia. Dr. Thomas applies the term prolapsus to all cases, “marking the degree of descent by the terms first, second and third.”

ETIOLOGY.—Any of the causes already referred to as producing uterine displacements in general may cause prolapsus. But it is seldom that any one cause, or, indeed, that any one class of causes, operates alone; though generally a single class of causes is most prominent. In my opinion, a weakening of the uterine supports is the most frequent etiological factor in producing prolapsus uteri, while the dragging down produced by pre-existing prolapsus of the vaginal walls comes next in point of frequency.

Prolapsus uteri most often follows and has its origin in the process of parturition, which is liable to give rise to many conditions, any one, or all, of which may cause the trouble. If there has been no laceration of the perineum or of the cervix uteri, and if involution progresses favorably, there will be no prolapsus, but, unfortunately, this favorable course is not always followed, the result being that the heavy uterus so weighs down upon the relaxed vaginal walls and utero-sacral supports, that they give way and fail to recover their normal tone and relations, so that some slight accident, such as a jar or cough or straining at defecation, causes the uterus to become prolapsed.

Prolapsus seldom occurs except in women who have borne

FIG. 131.—TO SHOW THE NATURE OF PROLAPSUS UTERI: *a*, peritoneum; *b*, bladder; *c*, uterus; *d*, anterior vaginal wall; *e*, anterior rectal wall; *f*, perineum; *g*, posterior vaginal wall. The dark portions are the coverings of the hernia (after Schutz).

children, and its frequency increases in proportion to the number of parturitions which have occurred.

MECHANISM AND PATHOLOGY.—Much difference of opinion exists among gynecologists as to the mechanism and pathology of prolapsus, scarcely any two investigators holding precisely the same views. For this reason, it is hardly worth while to encum-

ber a practical work of this character with the numerous theories on the subject.

The method by which the four classes of causes already mentioned, either alone or combined, may cause a descent of the uterus under various circumstances, is too evident to require any extended explanation; this is true, at any rate, if the student already has proper knowledge of the normal anatomy of the parts.

The mechanism of the descent of the uterus with its attachments is quite analogous to that of hernia. The vagina furnishes a tract through which passes the cervix uteri, followed by its vaginal attachments, the vagina becoming more and more inverted as the descent progresses, thus forming a sac which contains not only the uterus, but also the peritoneum and more or less of the small intestines. This sac, enlarging as it descends, finally, in



FIG. 182.—Stages of prolapsus uteri in ordinary cases.

complete prolapsus, extends through the vulva, and lies externally between the thighs. It then holds more or less of the prolapsed bladder which has followed the anterior vaginal wall, and may also include the rectum and the posterior vaginal wall, forming a pouch; but, more often, the posterior vaginal wall is peeled off from the rectum, leaving the latter in its normal position. The position of the uterus varies in its different degrees of descent, correspondingly with the direction of the axis of the pelvis in which it is engaged. The tendency is to a gradual retroversion, which is not only induced by the direction of the axis of the pelvis, but also by the fact that, as the soft parts are dragged

down, tension is made on the peritoneal aspect of the pubic segment, which has the effect to throw the fundus backward. After complete prolapsus the os points downward and, frequently, backward. The position is, of course, more or less influenced by the local condition of the organ, a heavy, congested fundus tending to increase the retroversion, while a heavy hypertrophied cervix might have the contrary effect.

According to Legendra, "the tension of the aponeurotic fibres of the broad ligaments, during uterine prolapsus, results in compression of the hypogastric veins, even as compression of the veins of the neck occurs from tension of the cervical fascia when the head is forcibly thrown backward. In this way, congestion of the uterus and other pelvic organs is kept up." Especially if subinvolution be present does the uterine congestion result in hyperplasia and hypertrophy, while the tension that is continually present serves to draw out the uterus and increase its length. The endometrium becomes greatly irritated and pours forth a vitiated catarrhal secretion, while the cervix is frequently the seat of erosions and even of ulcerations. The vagina becomes swollen and hypertrophied, and its mucous membrane the seat of vaginitis and catarrh. In complete prolapsus, the mucous membrane, acting as integument, becomes hypertrophied, dry, œdematous, eroded and ulcerated. Its transverse folds or rugæ disappear, and a proliferation of epithelium occurs which gives it the appearance of epidermis, or, as Thomas says, it "looks like the cicatrized surface of scalded skin rather than mucous membrane."

SYMPTOMS.—In exceptional cases, prolapsus may occur suddenly, and the patient experience excruciating abdominal pain, fainting, and profound nervous shock. More often, however, the descent is gradual, the patient experiencing only a sensation of weight and dragging in the pelvis and pain in the back and loins. These may constitute all the subjective symptoms, but usually, as the dragging down continues, and hypertrophy and other changes occur, the patient will have more or less rectal and vesical irritation; walking becomes difficult and fatiguing, all physical exertion, especially the lifting of heavy weight, causes pain and increases the descent, and leucorrhœa is present, together with other symptoms of congestion. In complete prolapsus there is more or less discomfort, sometimes extreme suffering being caused by the protrusion, and consequent excoriation of the parts.

Physical exploration will reveal the os lying more or less below its normal level, according to the degree of descent, and the finger passed up in the front of the cervix will detect the normal outline of the fundus, unless some malposition be present to com-

plicate the prolapsus, or unless the descent be so great that the fundus is already thrown backward to correspond to the axis of the pelvis, in which it is engaged. If the prolapse be complete, the physical signs are evident to both touch and sight.

DIAGNOSIS.—Examination for prolapsus uteri is usually made with the patient standing. Prolapsus may, however, be confounded with hypertrophy and elongation of the cervix, with fibrous polypi, with inversion, and with cystocele and rectocele. The diagnosis of these conditions is considered under their respective heads.

PROGNOSIS.—The prognosis is favorable or unfavorable in proportion to the degree of displacement, the length of time it has been present, and the nature of the complications which may exist. If there be considerable congestion of the uterus, with enlargement, and more or less endometric disturbance, or if the vaginal walls have been greatly distended and are flabby and atrophied, the prolapsus may persist in spite of all treatment. Fatal cases are recorded where death has resulted from pelvic inflammations, caused by the irritation from the prolapsed uterus, or from uræmia caused by pressure upon the uterus, or from the uterus becoming incarcerated, resulting in gangrene. No doubt, homeopathic remedies will do much toward relieving existing complications, and restoring the uterine supports to their normal tone and vigor, thus rendering the prognosis more favorable than when the treatment consists entirely of mechanical or surgical measures.

TREATMENT.—Prophylactic measures are not to be disregarded. In a majority of instances prolapsus results from improper management during the puerperium. Either the patient gets up too early, or resorts to some exercise, either in the care of the child or otherwise, before involution of the organs has taken place. Or, laceration of the perineum may have occurred, and the integrity of the pelvic floor have been destroyed. The physician should exercise his skill to prevent these occurrences. After labor any considerable laceration of the perineum should receive immediate attention, union of the parts being obtained either by the introduction of stitches in the usual manner (see Laceration of Perineum), or by the proper postural treatment as advised by some obstetricians. The latter consists in bringing together the knees and tying them, removing the urine with a catheter for several days, irrigating the vagina frequently with tepid water, to which may be added a few drops of Calendula, and by the use of enemata, keeping the bowels from becoming constipated. I have never been very successful with this method of dealing with a recent laceration, and prefer to introduce the necessary number of stitches, followed by precisely the same measures as have just been

detailed. In considering prophylactic measures it should not be forgotten that the application of the indicated remedy for any untoward symptoms that may arise either before or during the puerperium, may prevent a uterine displacement. No doubt when errors have been committed by puerperal patients, which may have a tendency to retard involution, and may have already induced some descent of the uterus, the indicated remedy and quiet rest in bed will overcome the evil effects, and avert what might otherwise prove to be a very troublesome and possibly a lifelong ailment.

When prolapsus of the uterus already exists, the first measure to be adopted is the replacement of the organ. This is usually readily accomplished, but in some instances taxis becomes necessary. According to Dr. Thomas (1) this is best applied in the following manner: "The patient after thorough evacuation of the bladder and rectum, if this be possible, should be placed upon her knees and chest, in order to cause gravitation of the pelvic and abdominal viscera toward the diaphragm. She should not kneel upon a soft or yielding bed, into which the knees would sink, but upon the floor or a table, for the object of the posture is to elevate the buttocks, and depress the thorax as much as possible. Ten or fifteen minutes should then be allowed to elapse before any efforts are made at reduction. In this time the intense congestion which exists in the pelvic viscera will greatly diminish. The operator then taking the cervix into the grasp of the index, middle and ring finger, pushes the uterus firmly and forcibly upward in coincidence with the axis of the inferior strait. While the right hand is thus employed, the left rests upon the back of the patient and steadies her body. No sudden or violent force is exerted, but by steady pressure, kept up, if necessary, for fifteen, twenty or thirty minutes, the uterus is restored to its place. Few cases will resist this kind of effort at reduction, although some may do so."

Violent force should not be exerted unless the condition of the patient demands immediate reduction, as might be the case if the uterus were incarcerated and gangrene impending.

The uterus having been restored to its normal position, the next thing is to keep it there. This should be accomplished, if possible, by proper posture and medicinal treatment. The patient should be kept in bed and the indicated remedy perseveringly administered. At the same time a glycerine plug should be applied and copious injections of hot water be used frequently. I once radically cured a very bad case of prolapsus of many years' standing in this manner. In many instances, however, the patient will not consent to remain in bed the necessary length of time, or, if

1) Diseases of Women, p. 342.

she does, the method of treatment is unsuccessful, and it becomes necessary either to resort to surgical procedures or to support the uterus by a pessary or by some other artificial means.

The varieties of surgical practice are: 1. Repair of the perineum (perineorrhaphy); 2. Repair of the perineum and denuding of the mucous membrane of the posterior vaginal wall (Elytro-perineorrhaphy); 3. Freshening the mucous membrane of the anterior vaginal wall (Elytrorrhaphy); 4. Freshening the mucous membrane on each vaginal wall, and stitching these surfaces together. The method of performing these respective operations will be found elsewhere in this book.

The plan of supporting the prolapsed uterus, together with the vagina, bladder and rectum, by artificial means, is that adopted in a vast majority of cases. In rare instances this can be accomplished by the use of an external bandage, but only in those cases where the prolapsus is kept up by undue pressure from above, resulting from the great size and weight of the abdominal tumors. In other cases good results are sometimes obtained from the use of a uterine supporter held in place by an external bandage. Theoretically, supporters have many advantages over pessaries, chiefly in that they do not distend and irritate the vagina, nor interfere with the nutrition of the parts; but, on the other hand, their use, according to my experience, is attended with disadvantages that render them less desirable than a well-adjusted pessary. Their most objectionable feature lies in the fact that the cervix is required to lie within a hard-rubber cup, which not only causes constant irritation of the mucous surface of the os and cervix, but also retains the secretions of the parts, and thus cervical inflammation, erosions and ulcerations are brought about. Dr. Ludlam says that "all kinds of stem supporters are likely to induce cellulitis or peritonitis, which may result fatally."

Pessaries have been used in the treatment of uterine prolapse since the days of Hippocrates, and while they have many objectionable features, and should never be employed when their use can possibly be avoided, yet they are at times a necessary evil, and cannot be altogether dispensed with. The greatest evil lies in the fact that their use is seriously abused. Physicians are frequently in the habit of applying a certain kind of pessary in all cases of prolapsus regardless of the local conditions or of the causes that are inducing the displacement, or without any idea as to whether the pessary they are using is the proper one to apply in the given case. Undoubtedly the general principles attending the use of pessaries are wrong. They are intended to act as a proper support for the uterus, and sometimes when skillfully adjusted, answer the purpose admirably, and the patient feels as if

she were cured at once. But, as Dr. Winterburn says, (1) the relief thus obtained "is mechanical, not vital, and therefore, unnatural and inhibitory. Muscles act only under the incentive of compulsion, and when the necessity of action is withdrawn they become lax, atrophic, and useless. The victim of this form of treatment, unless other influences are brought to bear which more than overbalance the injury inflicted by the mechanical support, soon finds herself utterly dependent upon it and unable to get about without it. A rational treatment, on the other hand, seeks to arouse vital action, not to suppress it; aims to encourage the supporting muscles to do their duty, not to supplant them by foreign mechanism; insists upon restoration of all the involved organs, both functionally and positionally, instead of providing mere temporary makeshifts, such as all mechanical supports necessarily are. The foreign body in the vagina not only deprives the uterus of such remnant of natural support as is still left to it, instead of restoring it; not only prevents nutrition of the parts and the full play of abdominal and respiratory movements; not only displaces the vaginal walls by its mere presence, and thus displaces every other pelvic viscus; but it prevents those natural oscillating and reciprocal movements of the uterus which are essential to its nature. When it is generally recognized that the primary disease consists in the weakness of those parts upon which the uterus and its appendages depend for support, and that the prolapse is incidental and secondary, it will be acknowledged that whenever the treatment is based on mechanical supports the real disease is concealed rather than cured. Not only is the pessary unscientific in theory, but, as ordinarily used, it is provocative of much mischief. Vesico-vaginal fistulæ, and other ulcerations, frequently result when pessaries are left *in situ* for months at a time. Dr. Marion Sims and others have mentioned many cases. The vaginal secretions are viscid, and incline to adhere to the instrument. The deposit does harm in two ways. It forms a roughened crust upon the pessary, which profoundly irritates the mucous lining of the vagina; this latter determines an undue flow of blood toward the parts, involving ultimately all the surrounding tissues in the congestion, setting up a proliferation of cell-growth which not only causes a loss of much vital power, but gives rise to serious organic changes. Or, this deposit decomposes, and the products of this decomposition are absorbed, thus adding a new and very grave complication. The use of a pessary is often provocative of flexion of the uterus, a worse condition than the original prolapse; for, while it supports the uterus from

1) Arndt's System of Medicines, Vol. II., p. 415.

below, it cannot in any way modify the pressure from above, which is crushing the uterus downward; and that organ, acted upon by these two opposite forces, bends upon itself, a condition which often becomes permanent and irremediable. While, therefore, a pessary may be of temporary benefit, and may even be used with advantage for a brief period in certain rare cases, the objections to every form of mechanical support are radical and cannot be gainsaid. The only rational treatment, and the only one meriting our attention, is that which restores the efficiency of the natural supports of the uterus."

Notwithstanding the truth of all these statements, the practical gynecologist is frequently obliged to resort to the use of pessaries. In those cases especially where the uterine supports are greatly weakened, and the vaginal walls are relaxed and feeble—as usually results from parturitions—and in cases occurring in old women, where surgical measures are not justifiable, pessaries may often be used with good results. They should never be employed if there is present any form of metritic, endometritic, peri- or parametritic inflammation. A pessary that distends the vagina should never be worn; nor one that causes the patient discomfort. While the pessary is in place the vagina should be daily irrigated with tepid water for purposes of cleanliness. The fitting of a pessary in a given case is often an extremely difficult task. On this point Dr. Emmett (1) says:

"The practitioner, to become an expert in fitting a pessary that it may do no harm, must have a decided mechanical talent; and, that the full benefit may be derived from the use of the instrument, he must be able to appreciate slight shades of difference which would be entirely overlooked by others. The first is a gift, which cannot be acquired; the second can be gained by experience, but it is of little practical value unless associated with the first. The great cause of failure and disappointment in the use of pessaries lies in the fact that the vagina is expected by many to adapt itself to any instrument which may be introduced, when in fact it is essential that the peculiarities of each individual case should be studied. In adjusting a pessary, the physician should pay as much regard to the peculiarities of shape and size of the vagina as the dentist does to those of the mouth when fitting a set of false teeth. I am fully aware that it will be considered an extravagant statement by many, but, nevertheless, I do not hesitate to make the assertion, that scarcely two women can be found who will be benefited by wearing the same shaped instrument. Fortunately, it is true, there are many women who are able to tolerate an

1) Op. Cit., p. 302.

ill-fitting instrument, without receiving injury, but they are not benefited, except it be by sheer good luck."

Of the great variety of pessaries now in use, I will only mention a few kinds that seem to be best adapted for ordinary cases.



FIG. 133.—Hodge's Pessary.



FIG. 134.—Thomas' modification of Hodge.

Hodge's pessary (Fig. 133) is probably the most popular, or Hodge's pessary as modified by Albert Smith (Fig. 136), Emmett (Fig. 135), or Thomas (Fig. 134.) The smaller curve of Emmett's



FIG. 135.—Emmett's modification of Hodge.



FIG. 136.—A. Smith's modification of Hodge.

modification of Hodge will answer the average indication more nearly than the sharper curve of the Albert Smith modification, but the latter will answer best when it is required to lift the uterus high in the pelvis. I have found the Fowler pessary (Fig. 137)

FIG. 137.—Fowler's Pessary.

to be an excellent instrument. In fact I think that it will, in its various sizes, answer the indications in ordinary cases more nearly than any other pessary. As the general practitioner can hardly keep an adequate variety of pessaries on hand, it will be found a good plan to use those made of block tin, which can be moulded to suit each individual case. Ring pessaries, as a rule, are not satisfactory, but are sometimes required. Meig's ring pessary

(Fig. 138), and especially Thomas' modification of Meigs, (Fig. 139), are considered the best. In old cases, where other methods

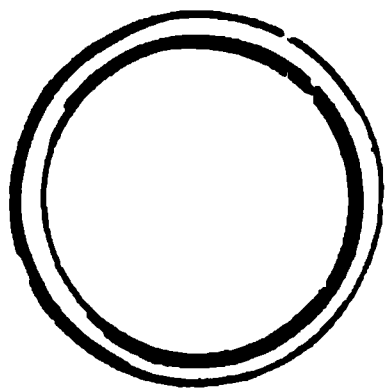


FIG. 138.—Meig's Ring Pessary.

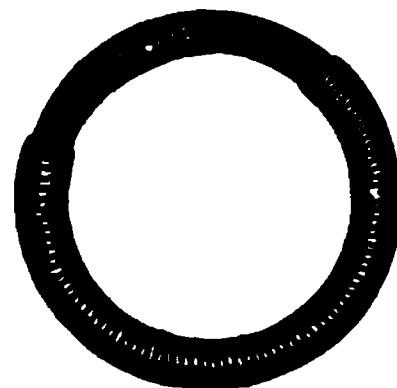


FIG. 139.—Thomas' modification of Meig's Ring Pessary.

have failed, the patient can be instructed how to pack the vagina once or twice a week with marine lint.

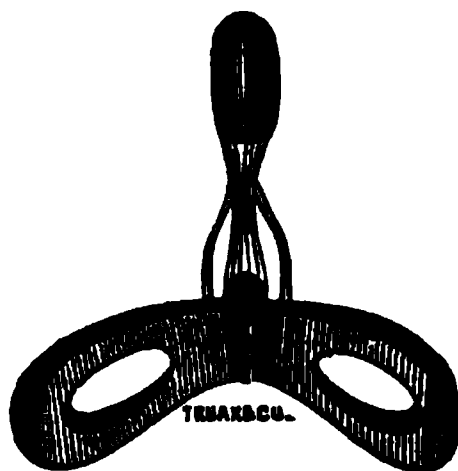


FIG. 140.—Zwanck's Pessary.

Whether pessaries are used or not, it is important that all superincumbent weight be removed from the abdomen. The clothing should be loose, the weight of the skirts should be supported from the shoulders, and the wearing of a corset prohibited. At the same time the patient should avoid any lifting or muscular exercise, and long standing or sitting without change of position.

The medical treatment of displacements has not received the attention which its merits demand. As has already been intimated, in attending to the local conditions we often lose sight of those constitutional disturbances which, whether the cause or the result of the prolapsus, have much to do with its prolonged existence. These may usually be controlled by the appropriate homeopathic remedy, which may also cover the local indications as well, and a permanent cure result. Many authenticated cases are reported where prolapsus and other forms of displacement have been permanently cured by administration of the appropriate internal remedy. The remedies most often used, in the order of their probable value, are *Sepia*, *Pulsatilla*, *Lilium tig.*, *Belladonna*, *Nux vomica*, and *Podophyllum*, but it must be remembered, as I have elsewhere remarked, that the totality of the symptoms alone must

guide to the selection of the remedy, but as the choice may fall in very many directions, I can hardly occupy the space necessary to mention the names of the possibly indicated drugs, much less give their special indications, for which I must refer the reader to our works on *Materia Medica*, or to Dr. Winterburn's excellent article in *Arndt's System of Medicine*.

CHAPTER XXIII.

ANTEVERSION. RETROVERSION. LATEROVERSION.

8. ANTEVERSION.

DEFINITION.—Anteversion consists in an obliteration of the physiological angle of flexion, the cervix pointing toward the sacrum while the normal tilt forward of the fundus is increased.

PATHOLOGY AND ETIOLOGY.—Generally as a consequence of chronic metritis or of subinvolution, the uterus becomes infiltrated

FIG. 141.—Anteversion of the uterus: 1, the rectum; 2, lying upon the uterus; 3, the fundus uteri; 4, the bladder; 5, the urethra; 6, the vagina.

and hard, and the physiological angle of flexion is obliterated, thus straightening the uterus; frequently some perimetritic inflammation causes adhesion of the cervix above, or of the fundus below. When the anteversion is first discovered the metritis may have disappeared, but the uterus remains fixed in its abnormal position by the adhesions. Increased weight from an interstitial fibroid may depress the fundus and cause anteversion. As chronic metritis or subinvolution are the chief causes of anteversion, it follows that we are most apt to meet with this displacement after parturition or abortion, and that it results secondarily from the same class of causes as will produce the conditions named. It is a comparatively rare affection, occurring much less fre-

quently than retroversion. The anteversion met with in early pregnancy is physiological.

SYMPTOMS.—These are such as result from the metritis and other complications, rather than from the displacement itself. The pressure of the fundus against the bladder often produces vesical irritation, even to cystitis, while the cervix pressing in a like manner against the rectum may cause more or less rectal irritation and pain in defecation. As a rule, the bladder symptoms are most constant and distressing. In exceptional cases the patient suffers only during the menstrual period, at which time the blood collecting in the fundus causes dysmenorrhea. There is, in most cases, more or less difficulty or discomfort in locomotion.

DIAGNOSIS.—This can be readily determined by vaginal touch, which discloses the cervix lying toward the hollow of the sacrum, the fundus resting upon the bladder, the outline of the uterus being readily traced with the finger, which also discloses that the normal angle of flexion is absent. The sound can only be used with great difficulty, and it is usually unnecessary. Bi-manual examination will show the size and shape of the organ, and the amount of fixation, and will usually settle the question whether or not the body felt anteriorly is the fundus uteri. If this is not clear, a rectal examination will decide whether the uterus is retroverted or not.

PROGNOSIS.—It is very difficult, to begin with, to replace an anteverted uterus that is bound down by adhesions, and, secondly, it is equally difficult to retain it in the normal position after replacement. Yet, notwithstanding these facts, the prognosis, as regards great improvement, and, possibly, cure, is usually favorable. Mechanical treatment is of chief importance in cases of long standing, while in recent cases careful medication conjoined with rest and hygienic measures, is often all that is required. Fritsch says that, "if the complications be removed, the dislocation *per se* does no harm," but I do not think, that this is always true, for the displacement itself may produce very serious vesical troubles, if nothing more. Pregnancy is said to sometimes produce a cure.

TREATMENT.—In recent cases the treatment is, usually, that which would be adopted for chronic metritis, or less often pelvic cellulitis or fibroid tumors, the reader being referred to these subjects elsewhere considered. Such treatment should be supplemented by measures that tend to restore the normal position of the uterus, of which the dorsal decubitus is most important. While any considerable degree of inflammation is present no effort should be made to forcibly replace the uterus, though a glycerine plug may be, each day, crowded up against the fundus.

After the inflammation has almost disappeared, if adhesions

are not present, the uterus can usually be replaced without difficulty. In order to accomplish this, the patient having emptied the bladder and removed any tight clothing from around the waist, should lie upon her back on a table or hard bed. The operator then places two fingers of the right hand against the fundus of the uterus, using the left hand to push up the abdominal viscera. The patient is then directed to take a deep inspiration, expiring the air slowly. As the air is being expired the operator firmly and steadily presses against the fundus, at the same time pushing up the abdominal viscera with the left hand. If the uterus tends to sink back immediately to its former position, the fundus may be sustained by the left hand on the abdomen, while the finger of the right hand is placed back of the cervix, and the latter drawn forward. After the uterus is replaced it becomes necessary to adopt methods to prevent its return, which otherwise it will almost invariably do. The patient should be instructed to assume the dorsal decubitus as often and as long each time as possible; especially should she do so during the middle of the day, if she is obliged to be on her feet more or less at other times. She should be instructed to retain the urine each time as long as possible, and should be prohibited from wearing any tight clothing, or having her skirts supported from the waist. At the same time she may obtain considerable benefit from wearing an external abdominal support, especially if she be corpulent. A glycerine plug packed in the posterior fornix behind the cervix is often very beneficial.

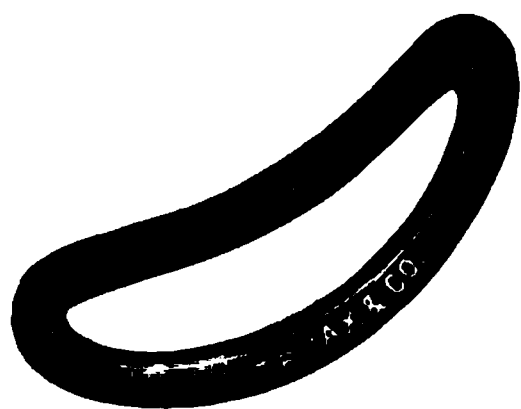


FIG. 142.—Graily Hewitt's Cradle Pessary.

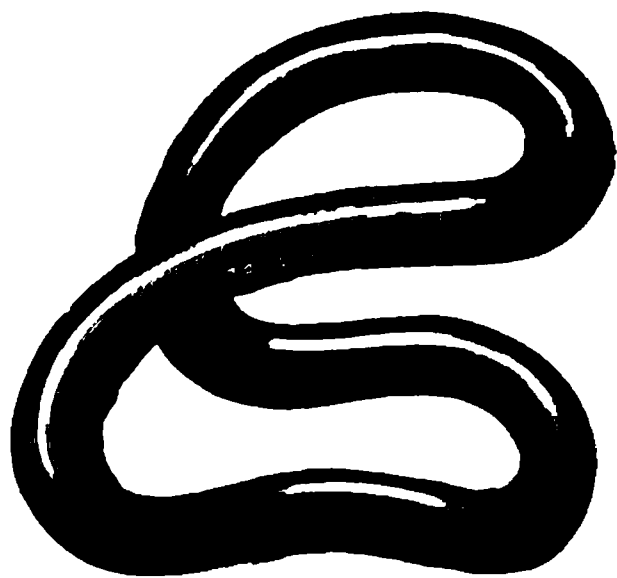


FIG. 143.—Gehrung's Anteversion Pessary.

If these methods do not prove sufficient it will be necessary to introduce a pessary. A simple ring pessary along the posterior vaginal wall will probably answer the best purpose. Introduce the pessary with a pair of dressing forceps, until it can pass no farther, or causes pain, when the forceps-blades are to be separated, and the ring opens, drawing the cervix into its lumen by atmospheric pressure. The uterine body being inflexible follows the

movements of the cervix and becomes elevated to its proper position. Various forms of pessaries have been devised for anteversion, but I consider the ring superior to any of them. Graily Hewitt's "cradle pessary" (Fig. 142), Gehring's pessary (Fig. 143), Thomas' anteversion pessary (Fig. 144), and Hitchcock's anteversion pessary (Fig. 145), all have their advocates. The best rule to follow is never to use a pessary of any kind if it can possibly be avoided, and where it cannot, to use the simplest contrivance possible.

Aurum, Belladonna, Calcarea, Ferrum, Lilium tig., Mercurius, Nux vom., Platina, Sepia and Stramonium, are the remedies especially recommended by Dr. Lilienthal in anteversion, but the



FIG. 144.—Thomas' Anteversion Pessary.

FIG. 145.—Hitchcock's Anteversion Pessary.

symptoms alone must decide as to their application. I think it can hardly be said that any one class of remedies is most useful in this particular form of displacement. As a rule, the remedies that will be called for are those most often used in chronic metritis, to the article on which the reader has already been referred.

4. RETROVERSION.

DEFINITION.—Retroversion is that malposition of the uterus in which the fundus lies tilted back toward the sacrum, while the cervix is directed forward toward the symphysis pubis.

ETIOLOGY AND PATHOLOGY.—Whenever the bladder is distended to its fullest extent it causes a retroversion that is physiological, the uterus returning to its normal position after urination. If, however, there is present in the uterus any pathological condition, such as a tumor—especially if it be in the posterior wall, which makes the uterus heavy—or if there be a weakness of its anterior ligamentous attachments, the uterus may not return to its proper position after urination, and a pathological retroversion results. So, too, when the uterus is retroverted by a full bladder, in the manner described, if the patient falls backward, or if she slip, or strain herself, so as to give the organ a still greater impetus backward, the uterus may not return to its normal position. After parturition as the patient lies upon her back, the uterus is retroverted, a state which is physiological, but sometimes, from

subinvolution or other cause, the uterus fails to resume its normal position and the retroversion persists. According to Winckel, (1) "when instrumental deliveries, such as extraction with the forceps before complete dilatation of the os, or *accouchement force* in placenta prævia, have lacerated the vaginal vault and cervix, and the anterior lip has become distorted from cicatrization, so that the vaginal portion is drawn up against the anterior pelvic wall, the bladder will gradually force the body of the uterus backward. The inflammatory processes which almost invariably follow such

FIG. 146.—Retroversion of the uterus.

injuries confine the patient in bed, where she lies in the dorsal position, and this favors the inclination of the cervix to the anterior pelvic wall, and promotes the formation of adhesions between the uterine fundus and the rectum."

Pelvic inflammation behind the uterus may produce adhesions or cicatricial bands, and drag the uterus backward. Retroversion may also occur in the mechanism of prolapsus uteri, as well as in that of retroflexion, it being not an uncommon thing, especially in married women, to have an ordinary retroversion end in a retroflexion. According to Fritsch, (2) "If the fastenings are relatively firm and the body relaxed, the latter becomes flexed—retroflexion arises. On the contrary, if the fastenings are lax and the body firm, badly involuted, stiff, chronically inflamed and heavy, the uterus descends, inverting the vaginal vault—the process of prolapsus begins."

SYMPTOMS.—Here, as in other forms of uterine displacement,

1) Diseases of Women, Parvin p. 313.

2) Diseases of Women, W. Wood & Co., p. 192.

it may be difficult to determine whether the symptoms arise from the retroversion or from the complications which exist with it. Ordinarily, the patient complains of bearing-down sensations, a feeling of heaviness in the pelvis, exhaustion and discomfort from walking or standing, vesical tenesmus, pain on defecation, and constipation. The vesical tenesmus is caused by the dragging back of the bladder by the retroverted uterus, preventing it from completely contracting. This may also cause a flexure of the meatus, or the cervix may press against the meatus, causing complete retroversion. At the same time the fundus presses against the rectum, causing difficulty and pain in defecation, and even constipation, hemorrhoids and ulceration.

In recent cases occurring during the puerperium, hemorrhage is a prominent symptom. This may be severe, but more often it is slight, and is considered by the patient as commencing menstruation. Retroversion sometimes occurs suddenly, from a fall or blow, the symptoms being very severe. The patient falls to the ground and is unable to rise, experiences the severest pelvic pain, suffers from suppression of urine and retention of feces, and is often in such agony that the face is bathed with perspiration and the pulse becomes weak and fluttering.

Physical examination reveals the cervix lying toward the symphysis pubis, and the finger can trace the outlines of the uterus backward until the body of the organ is found resting upon the rectum. The greater the degree of displacement, the more accurately can the outlines of the fundus be made out.

DIAGNOSIS.—In most instances a vaginal examination revealing the conditions just described is all that is necessary, but should there be any doubt, a rectal examination will more clearly reveal the outlines of the fundus. It may also be necessary to pass the uterine probe in order to be certain of the direction of the uterine axis. Bi-manual examination will show the absence of the fundus from its normal location.

Retroversion is most apt to be confounded with a fibroid tumor on the posterior wall, or with the results of pelvic inflammation, but the history of the case and the physical signs are usually sufficient to establish the diagnosis.

PROGNOSIS.—With appropriate treatment the prognosis is usually favorable, but in cases in which the uterus is bound down by strong adhesions, or when an interstitial fibroid tumor is present, the displacement may persist in spite of all treatment.

TREATMENT.—The first indication for treatment is to remove any inflammation that may exist, which is to be accomplished according to methods which have already been considered under the various forms of pelvic inflammation. The patient should at all

times be careful not to lie continually upon the back, and should evacuate the bladder frequently. The next indication is to replace the uterus. In order to accomplish this the patient should assume the knee-chest position, after which the operator introduces two fingers into the posterior *cul-de-sac*, their palmar surfaces facing the rectum, and makes firm pressure upon the fundus. If this is not sufficient, the index finger may be introduced into the rectum and pressure made against the fundus, or Guernsey's uterine elevator may be used for this purpose. This instrument (Fig. 147)

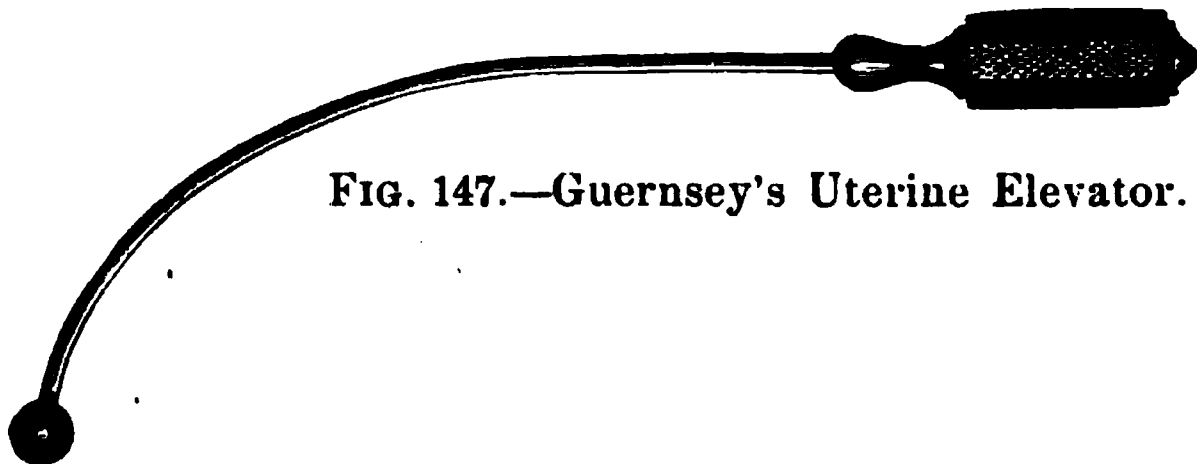


FIG. 147.—Guernsey's Uterine Elevator.

consists of a curved steel rod about eight inches in length, provided with a handle at one end, while on the other there is a round ivory ball about three-fourths of an inch in diameter. After lubricating the ball it is gently introduced into the rectum, with the handle upward. The instrument is then carefully pushed forward, the handle being sufficiently elevated to allow the ball to press against the anterior wall of the rectum. As the latter pushes against the fundus, if there are no adhesions, it will cause the uterus to return to its normal position. Should the ball slip over the fundus, it must be drawn back and the effort repeated. In some cases it may be necessary to increase the leverage by making traction upon the cervix per vaginam, at the same time that pressure is made upon the fundus per rectum. Some physicians use a sponge fixed in a sponge holder, with which they press against the fundus, or have two sponges thus fixed, carrying one into the rectum and the other into the vagina.

If all these means fail, it is altogether likely that the uterus is bound down by adhesions. At all events, I would not advise, in such cases, any efforts to restore the organ by means of instruments which are introduced within its cavity, as they are liable to injure the uterus and create inflammation. In cases where but little force is required, some prefer to the methods already mentioned, the use of Elliott's uterine repositor (Fig. 148), or, what is still better, of Sims' uterine repositor (Fig. 149). I do not favor the use of such instruments, for they are not very effective, and are often dangerous. I consider the sound a better instrument with which to elevate the uterus, if any intra-uterine contrivance

is to be used. The method of using the sound is to introduce it into the uterus, and allow it to follow the curve of the organ backward, after which the sound is made to slowly revolve one-half, the handle being at the same time gradually elevated until the



FIG. 148.—Elliott's Uterine Repositor

concavity of the sound is upward. The left hand is then placed under the sound near the vulva, thus constituting a fulcrum, the sound being the lever, the handle of which is gently and steadily

pushed back to the perineum, and the uterus carried into position. Ordinarily, however, pressure upon the fundus per vaginam is all that is required. In some instances the mere assuming of the knee-chest position and separating the walls of the vagina to allow the admission of air causes the uterus to be restored to its proper position without any manipulation.

After the uterus has been replaced the patient should remain in bed for several days, lying mostly upon her side and face, and should at intervals through the day, for a few minutes at a time, assume the knee-chest position, at the same time separating the lips of the vulva to allow the admission of air. During this time the indicated remedy should be persistently administered.

If these methods fail to effect a cure, it will be necessary to again replace the uterus and hold it in position by an artificial support. The latter may consist of a glycerine plug renewed daily and placed in the posterior cul-de-sac, but more often some form of pessary will be required. The pessaries most often useful in retroversion are the modifications of Hodge, which have already been described in the article on Prolapsus of the Uterus and those shown in Figs. 150, 151, and 152. Great care should be taken to have a pessary that fits perfectly. No pessary should be allowed to



FIG. 150.—Thomas' Retroversion Pessary.

FIG. 151.—Hoffman's Retroversion Pessary.

remain when the patient is conscious of its presence otherwise than by the relief which it affords.

The method of introduction in retroversion is as follows: After the uterus has been replaced the patient is caused to assume the semi-prone position, and the pessary, well lubricated, is introduced, the cervix curve next to the rectum and the uterine upward, being careful that the latter does not catch on the cervix, it being important that the cervix be engaged in the lumen of the pessary.

There is no rule by which it can be determined in advance

just how long the patient will need to wear a pessary in order to accomplish a cure, but whether the time be long or short, the pessary should never be worn any longer than really necessary. In those cases of retroversion accompanied by hemorrhage, which sometimes occur after childbirth, hot water injections should be

FIG. 152.—Byford's Retroversion Pessary.

used to avert the hemorrhage, provided an immediate replacement of the uterus does not accomplish the purpose, as it usually does.

5. LATEROVERSION.

DEFINITION.—Lateroversion consists in a tilting of the uterus either to the right or left side.

ETIOLOGY.—This is a rare displacement, and is generally the result of pelvic exudation, which tends to fix the uterus in its abnormal position; but it may arise from other causes, such as metritis or inflammation of the broad ligament, and it is supposed to be sometimes congenital. Schröder says that a slight tendency of the fundus to lean toward one side, usually the right, is physiological.

SYMPTOMS.—These are usually slight, as neither the cervix nor the fundus impinges on the bladder or rectum. The diagnosis can only be arrived at by a physical examination.

TREATMENT.—Usually no treatment is required, but symptoms may arise which should be combated with the indicated remedy. If pelvic exudations exist, efforts should be made to cause their removal by the usual means. The patient should lie as much as possible on the side opposite to that toward which the uterus tilts. A pessary is not usually required, but in case it is, the same principles must govern its use as in other forms of version.

CHAPTER XXIV.

6. ANTEFLEXION.

DEFINITION.—By anteflexion is understood a pathological exaggeration of the normal forward bending of the uterus; the angle of flexion remaining rigid under all conditions, and not yielding to the influence of a full bladder or other circumstances which usually affect the position and angle of a normally mobile uterus.

VARIETIES.—Unfortunately it has not been customary to distinguish any varieties of anteflexion, but as these are readily rec-

FIG 158.—Anteflexion of the uterus.

ognized, and as treatment can only be successfully applied according to the location of the flexion, it follows that a division based upon the location is practicable and desirable. We may, therefore, distinguish three forms of anteflexion:—

1. Corporeal flexion, the cervix being normal in position and the body flexed. This form is rare.

2. Cervical flexion, the body being normal in position and the cervix flexed. This is the most common form.

3. Cervico-corporeal flexion, both cervix and body being sharply flexed. This variety may be either congenital or acquired.

ETIOLOGY.—Congenital anteflexion is not due to defective fetal development, but to a failure of the uterus to properly de-

velop at puberty, which failure usually extends also to the uterine appendages, ovaries and vagina. Acquired anteflexion most often results from a prior pelvic inflammation, which may either act directly, by dragging down the fundus or by pulling the cervix forward, or indirectly, by retracting the sacro-uterine ligaments, the cervix being thus drawn upward and backward, and the fundus thrown slightly forward. Schröder holds that this retraction of the cervix is produced by adhesions resulting from peritonitis. The products of inflammation may also cause a thickening of the posterior wall of the uterus, while prolonged pressure causes a corresponding atrophy of the anterior wall at the angle of flexure. It is important to establish the nature of cases resulting from pelvic inflammation, as in such cases, according to Hart and Barbour, hasty operative procedures are contra-indicated, and the prognosis as to cure is unfavorable.

Anteflexion may also be caused by an increased weight of the fundus, due to the presence of a fibroid tumor. It may also arise from an unequal growth of the uterine walls, or from an unequal involution.

SYMPTOMS.—These are quite indefinite. Dysmenorrhea is probably the most common symptom, and that which most often causes the patient to seek advice. It is usually of the obstructive variety, and is caused by the diminished calibre of the canal created by the flexion. This obstructs the free exit of the menstrual fluids, which, being coagulated, are retained, and thus excite muscular contractions in effort at expulsion. In some instances the dysmenorrhea is congestive, caused by obstruction in the veins at the angle of flexure, which results in congestion of the body of the uterus, the pain being due to the resistance which the muscular tissue offers to this hyperæmia. This engorgement of the uterus sometimes causes the canal to be temporarily straightened, which removes the cause of the congestion, and the flow being established, the patient is relieved.

Irritation of the bladder, with frequent micturition, or incontinence or retention of urine, may be present, but often there are no bladder symptoms at all. If there be any considerable degree of pelvic congestion there will be more or less pain over the hypogastrium, and in the groins and back, and, if endometritis be present, leucorrhea, but these are not due directly to the displacement, and are often absent. The patient often complains of pain, and difficulty in locomotion, which sometimes disappears at once when the displacement is restored, but in other cases it does not, and the symptom is evidently of mental rather than of physical origin. I have found more or less hysteria associated with almost every case of anteflexion that I have been called upon to treat,

though this is not usually considered symptomatic. Sterility is nearly always present, and whether due entirely to the contraction of the canal preventing the entrance of the spermatozoa is not certain, though quite probable. This is, perhaps, the reason why ante flexion occurs most often in nulliparæ. There is often a sensation of sinking, or "goneness," at the epigastrium, and sometimes pain on sexual intercourse. If the uterus be enlarged, or endometritis be present, there may be menorrhagia.

DIAGNOSIS.—Physical exploration usually reveals the cervix in about a normal position, and, as the finger traces its anterior surface, the fundus will be found in the anterior fornix, while the distinct angle created at the point of flexion may be readily distinguished. The bi-manual examination is necessary in order to determine the shape, size and sensitiveness of the uterus, and also sometimes to verify the presence of the fundus in the anterior fornix. It is important to ascertain if pelvic inflammation be present, or whether the displacement be due to the results of any prior inflammation. Examine carefully the posterior fornix to see if there are any bands drawing the cervix backward; try whether bringing the cervix forcibly forward causes pain, which would indicate an inflammatory condition in the utero-sacral ligaments or the presence of adhesions in the pouch of Douglas. We can ascertain this even better by passing the middle finger into the rectum, the index finger being in the vagina, and at the same time making the bi-manual examination. The finger in the rectum feels a pouch in the anterior rectal wall, bounded by a tense band on each side (utero-sacral ligaments), or one or more cord-like adhesions (the result of former peritonitis), or a general resistance to pressure which produces pain. Any of these conditions indicates that the cause has been inflammation, which has produced cicatrization behind the cervix." (1) If the means already mentioned are not sufficient, the sound, curved to correspond to the angle of the flexion, may be introduced, to show the direction of the uterus, its length, and the sensitiveness of its walls. If there is difficulty in passing the sound beyond the point of flexion, this may be overcome by drawing down the uterus with a volsella, or pressing the fundus upward with the finger or suitable instrument. The sound should not be used if active cellulitis be present. Ante flexion is most apt to be confounded with a fibroid in the anterior wall of the uterus. In such a case the sound would show the normal axis or a backward direction of the uterus, and the sound could not be felt through the anterior fornix. The same would be true if a cellu litic deposit were present in the anterior fornix.

1) Hart and Barbour, *Op. Cit.*, p. 824.

PROGNOSIS.—According to Thomas, (1) the prognosis as to cure will depend upon the following circumstances :—

(a) It is better in multiparous than in nulliparous women, because the vagina in the former more readily admits of the use of mechanical supports, and because it is acquired and not congenital.

(b) It is better in pure corporeal anteflexion than in those varieties in which the cervix is affected.

(c) Where the cervix is thrown far back and lifted high in the pelvis, the prognosis is decidedly unfavorable, and more especially, if there exist only a scanty vaginal pouch anterior to the neck.

(d) If the flexion be of a reducible kind, prognosis is favorable ; if the contrary, it is by no means so.

(e) The prognosis of congenital flexion is almost a hopeless one, unless the knife be resorted to.

(f) Of all the cases, except the last, the prognosis is most unfavorable in those in which the vagina joins the cervix very low down, near the os externum, and where the uterus is held high in the pelvis.

TREATMENT.—The first indication for treatment is to remove, by the usual methods, any pelvic inflammation that may be present, and also to administer the indicated remedy. In some instances a chronic metritis or cellulitis may so complicate the case that direct treatment of the displacement is contra-indicated, and we are obliged to be content with such treatment and palliation as the general health and circumstances of the patient demand. Certainly no active treatment for the displacement should be inaugurated while pelvic inflammation exists.

The direct treatment of anteflexion differs very materially from that of other displacements, especially those that have already been considered. Here the object is not alone to return the fundus to its normal position and hold it there, for such a course would not obviate the flexion, except in rare cases where there existed no pathological rigidity or hyperæmia, and, in such, treatment is usually not required. It should be the rule not to interfere with an anteflexed uterus unless it has induced symptoms which demand relief. Most often these symptoms are those of dysmenorrhea, and the treatment required is to straighten the uterine canal. This cannot be done by the aid of ordinary pessaries, but requires either (a) dilatation, (b) the intra-stem pessary, or (c) a division of the cervix.

(a) **DILATATION.**—This may sometimes be accomplished to a sufficient degree by the introduction of the sound two or three

1) *Op. Cit.*, p. 404.

times a week. This should be very carefully done, no force being used, otherwise the operation is attended with some danger. Two or three times during the intermenstrual period, it is well, after having introduced the sound, to raise the body of the uterus to its normal position, or even to retrovert it to some extent by a careful rotation of the sound. If the ordinary uterine sound proves insufficient, steel sounds of gradually increasing calibre may be used. (See chapter on Instrumental Examination.) Various dilators have also been used, but I prefer Molesworth's acme dilator, which has answered an excellent purpose in my hands. Dilatation with tents affords only transient relief; it is always dangerous, and of late is seldom resorted to.

Some gynecologists strongly recommend Ellinger's plan of rapid dilatation, but as the operation is fraught with great danger, especially in the hands of an inexperienced operator, and one who is not fully acquainted with all the requirements of uterine surgery, I will simply make this mention, and refer the reader to a contribution on the subject by Dr. Goodell (1) for further information.

(b) INTRA-STEM PESSARIES.—Were it not for the constant danger attending its use, the intra-stem pessary would best fulfill the indications for straightening the uterine canal, as, being allowed to remain *in situ*, it may hold the uterus in position until the anterior wall becomes sufficiently stiffened, so that the flexion does not return. It has quite often proved effective, but its use is hazardous, even when carefully applied, it is seldom



FIG. 154.—Chapman's Intra-Uterine Stem Pessary.

resorted to. I have several times used Chapman's intra-uterine stem pessary [Fig. 154] with good results. Jackson's elastic-stem pessary [Fig. 155] is highly praised by many, but I agree with Dr. Pratt, of Chicago, that Dr. Jackson's "process is so slow and tedious that it is scarcely worth while to comment upon it."



FIG. 155.—Jackson's Elastic Stem Pessary.

(c) DIVISION OF THE CERVIX.—This method of treatment is applicable only to those cases where the flexion is cervical, and also where the flexion, though but slight, is complicated with stenosis. The several methods of operating are described in the chapter on Stenosis.

In cases where the flexion is well marked, Marion Sims' method may be employed. It consists

1) American Journal of Obstetrics, 1884. p. 1179.

in dividing the posterior lip about half way from the vaginal insertion, and also dividing the mucous membrane of the anterior wall at the seat of flexion, the object being not only to enlarge the canal, but to cause its axis to become more conformable to that of the body. The lines of incision are shown in Fig. 156. The

FIG. 156.—SIMS' DIVISION OF THE CERVIX: *a*, incision in posterior lip; *b*, incision at knee of flexion (Marion Sims).

incision must be kept open for some time by occasionally passing a bougie, or by introducing a glass or vulcanite stem pessary. If this is not done, the wound will soon close by cicatrization, and the operation prove a failure. Dr. Nott, in these cases, practices removing the entire posterior of the wall of the cervix, as near as possible to the vaginal juncture.

The constitutional treatment of patients suffering from ante-flexion should not be overlooked. The persistent application of the indicated remedy for the symptoms that may arise from time to time will have much more to do with the ultimate cure of the displacement than is usually supposed by those who see in any displacement only a mechanical deformity, entirely overlooking the causative influences of a constitutional character.

CHAPTER XXV.

RETROFLEXION. LATEROFLEXION.

7. RETROFLEXION.

DEFINITION.—By retroflexion is understood a bending backward of the body of the uterus toward the sacrum. It usually results from and is always associated with retroversion, but for convenience the double displacement is known as retroflexion, in order to distinguish it from simple retroversion, already described.

PATHOLOGY.—The pathological conditions consequent upon retroflexion require a brief notice, as this displacement, with its

FIG. 157.—Retroflexion of the uterus.

associated disturbances, constitutes the most frequent and most important form of gynecological disease with which we have to deal, excepting, however, pelvic inflammations and cervical endometritis, and even these are frequent complications of retroflexion. The uterus is bent upon itself at or about the os internum, the fundus lying more or less down the pouch of Douglas, pressing against the rectum. The size of the uterus is increased, the walls being usually thickened, and the cavity, as shown by the sound, somewhat lengthened. There is usually a thinning of the posterior wall at the point of flexion, though this is not always the case. Sometimes in recent cases a swelling of the tissue is observed at the point of flexion, this afterward disappearing and atrophy taking its place. In cases of very long standing it is not unusual to

find the entire uterus atrophied and hardened. The fundus is usually freely movable, and easily replaced, but not infrequently it is bound down by adhesions to the adjacent tissues. In some cases the uterus appears to be adhered, but farther investigations prove to the contrary. This has been explained by the fact that "the retro-sacral ligaments may grasp the fundus laterally, and so temporarily retain it *in situ*." The cervical canal becomes partly closed, but on account of the fact that retroflexion usually occurs in multiparæ, where the os is more or less patulous, the symptoms resulting from constriction—dysmenorrhea and sterility—are not so frequent or persistent as they are in antelexion. If lacerations are present, the anterior lip of the os is drawn upward, causing eversion, and consequent erosions and ulcerations.

The ovaries are usually dragged down by the displaced fundus, and often may be felt at either side or behind it. They are frequently enlarged and tender upon pressure, and sometimes become adherent to the uterus or to the peritoneum.

According to Hart and Barbour, (1) "The peritoneum is altered in its normal relations as follows: The broad ligaments have their surfaces reversed; that is to say, the anterior, which was formerly inferior, is now superior; from their attachments they offer no obstacle to retroflexion. The utero-vesical pouch is necessarily obliterated. The pouch of Douglas must, on the other hand, be distended by the fundus uteri; this implies a stretching of the utero-sacral ligaments associated with the alteration in position of the cervix.

"The pelvic nerves are occasionally affected, as shown by weakness in the lower limbs. This loss of power must be produced reflexly; from the anatomical relations, the retroflexed fundus cannot compress the motor nerves of the sacral plexus, as is sometimes affirmed."

ETIOLOGY.—In a majority of cases retroflexion arises from retroversion. According to Fritsch (2), the mechanism of the transition is as follows: "The fastenings of the uterus do not yield ad infinitum; the intestines rest upon the anterior surface of the uterus; every increase of the intra-abdominal pressure adds to its weight. When the uterus involutes it becomes flexible, the upper half gradually bends more and more backward from the lower half. As there is still a certain amount of resistance at the angle of flexion, the vaginal portion follows the movement; that is to say, the more the fundus falls backward and downward, the more the vaginal portion glides forward and upward. Hence there is a stage of transition in which the uterus at times roofs

1) Op. Cit., p. 340.

2) Diseases of Women, W. Wood & Co., 1883, p. 194.

over the pelvis, as in anteversion, but in the opposite direction. The uterus at that time is often soft, so soft that it may be indented, that thin pessaries leave grooves within it, that the compression from behind, rectum, and from in front, bladder, renders the body shorter and broader. But gradually the fundus must sink more and more downward, the vaginal portion moving forward. Thereby the body, as it were, bores its way between the vaginal portion and the rectum, until the fundus rests upon the floor of the fossa of Douglas."

If retroflexion is thus secondary to retroversion, it naturally follows that the course of the retroversion already described may be considered as the primary cause of retroflexion. The body of the uterus is nearly always enlarged and heavy from subinvolution, or chronic metritis, its walls soft, its ligaments and the tissues of the pelvic floor lax and yielding, so that any of the causes named under retroversion may readily obtain. A fibroid tumor in the posterior wall may also cause retroflexion. The causes of the few cases occurring in nulliparæ are not precisely known.

SYMPTOMS.—These are numerous and varied in their character, depending not only upon the changes in the uterus itself, and the influences of the dislocation upon adjacent organs and tissues, but also upon reflex disturbances and the associate effects upon the general health. The most important symptoms are weakness and aching in the back; weight in the rectum, tenesmus and painful defecation; leucorrhea; dysmenorrhea; menorrhagia; symptoms of chronic pelvic peritonitis; neuralgia; neurasthenia; sterility; abortion; hysteria, and other nervous disturbances.

The first symptoms named are the most constant. Dysmenorrhea, though frequently present, is not so common or severe as in anteflexion, owing to the fact that retroflexion usually occurs in multiparæ, in whom the uterine canal is larger and more patulous. The rectal symptoms are caused by pressure of the fundus against the rectum.

DIAGNOSIS.—Vaginal examination reveals the cervix low in the pelvis, with the os looking directly downward, while the fundus, as a firm, round body continuous from the cervix, is found in Douglas' pouch, the point of flexion being plainly felt as a more or less deep groove between the fundus and the cervix.

Bi-manual examination will show the absence of the fundus from its normal position, and if the abdominal parietes are not too thick and firm we may be able to grasp the retroflexed organ between the finger in the vagina and the external hand. In this manner we can decide not only as to the position of the uterus, and the point of flexure, but also as to its size, form,

consistency, sensitiveness, and mobility, and may thus be able to determine the probable difficulty of replacement.

If not entirely satisfied, rectal examination will greatly aid in detecting these conditions. In determining the mobility of the organ, it is not only necessary to ascertain whether it is bound down by adhesions, but also whether, when the fundus is raised, the flexion disappears, or the uterus rotates as a whole, the flexion remaining. The introduction of the sound will show the direction of the uterine canal, its depth, and the sensitiveness of the tissues. The sound must be curved to correspond with the degree of flexion supposed to be present, and introduced with its concavity backward. If retroflexion be present, it will not be necessary to rotate the sound in order to introduce it. We should also be certain that pregnancy does not exist before attempting to use the sound.

An accumulation of feces in the rectum, an inflammatory exudation, a carcinomatous mass, hematocele behind the uterus, an enlarged and prolapsed ovary, or a fibroid in the posterior wall of the uterus, may be mistaken for the body of a retroflexed uterus; but the history of the case, together with the practice of the diagnostic methods above indicated, will probably remove all doubt.

PROGNOSIS.—This depends upon the mobility of the uterus and the possibility of replacement. The more recent the displacement, the more favorable are these conditions. According to Mundé, "recent displacements of any variety are the only cases which offer a fair chance of complete recovery by any of the mechanical means at our disposal."

According to Thomas, (1) the following conditions prevent a favorable prognosis. "1st. A cervico-vaginal junction so low as to give no post-cervical space for accommodation of a pessary; 2d. The previous existence of peritonitis and fixation of the uterus; 3d. The existence on the posterior wall of a sensitive fibrous tumor."

TREATMENT.—This consists, first, in the replacement of the retroflexed organ, and second, its retention in the normal position.

Replacement is usually a comparatively easy matter, provided no adhesions exist. I always follow the plan advocated by Thomas (2), which is as follows: The patient being placed in the left lateral position, with the left arm drawn behind the body, the operator lubricates the ring and middle fingers of his right hand and passes them, with the palmar surfaces toward the posterior

1) Op. Cit., p. 418.

2) Op. Cit., p. 418.

vaginal wall, up to the fundus. He now stands behind the patient, his face looking toward her occiput, and the line of the anterior surface of his body being about on a level with one passing through the woman's body at the base of the sacrum. Now bending forward, by the tips of the fingers he pushes the fundus upward, while by their bases he retracts the perineum, elevates the posterior vaginal wall, and admits air freely to the vagina. As the uterine body rises in the pelvis to a perpendicular, the flat surface of the finger-nails will rest against it. By these he makes pressure forward, that is, toward the pubes, and steadily forces the uterus into ante flexion.

As Thomas says: "In very difficult cases the knee-chest position may be necessary, but it is not often called for."

Some claim that the bi-manual method is a safer, more effective and permanent method of re-position. It is accomplished as follows: the patient being in the dorsal position, introduce two fingers of the left hand into the posterior fornix, and gradually elevate the fundus out of the hollow of the sacrum to the pelvic brim; then with the fingers of the right hand pressed down behind its posterior wall from the outside, and the finger of the left hand in the anterior fornix pressing against the cervix, the uterus is brought forward to an anteverted position.

The sound is frequently used to replace a retroflexed uterus, but being used as a lever there is great danger of employing an undue amount of force, and thus causing serious injury to the mucous membrane. Under no circumstances should the sound, after being introduced, be simply rotated and the uterus lifted. It is very necessary to get a proper understanding as to how the sound is to be used in order to insure any degree of safety and efficiency. The method for so doing is so plainly described by Hart and Barbour that I will quote from them. (1) "The end of the sound should not be too much curved. If the flexion be pretty acute, so that the sound requires to be well curved to pass easily into the body of the uterus, we should first reduce the acuteness of the flexion by repeatedly passing in the sound more and more straightened. Having by this means partially converted the retroflexion into a retroversion, we proceed to re-position as follows: The sound lies as in position 1, in the figure (Fig. 158): the direction of the handle is backward, and the roughened face looks to the back; the intra-uterine portion also has the curve backward. Now lay hold of the handle loosely, rather allowing it to lie between the fingers than grasping it. Carry the handle upward toward the patient's right buttock (as she is on her left side), forward with a wide sweep, and downward again toward

1) *Op. Cit.*, p. 348.

the couch, the shaft describing half a cone. The sound thus comes to lie in position 2, in the figure: the direction of the handle is forward, and the roughened face is now to the front; the intra-uterine portion of the sound has also rotated, so that the curve is now forward, but the uterus as a whole is still to the back (Fig. 158, 2, 2.) Now carry the handle of the sound gently and slowly backward, in a straight line toward the perineum. The sound now lies in position 3: the roughened surface is to the front, but the handle is now directed backward; the fundus uteri is consequently in its normal position (Fig. 158, 3.) The



FIG. 158.—REPLACEMENT OF THE UTERUS WITH THE SOUND: 1, 2, 3, the successive positions of the sound and of the uterus.

reason for this manipulation is evident. If we rotated the handle of the sound forcibly round its long axis (bringing it at once from position 1 to 3), the intra-uterine portion would describe a wide curve within the uterine body and probably produce laceration of the mucous membrane. Before withdrawing the sound we make sure by external palpation that the fundus uteri is to the front, as the latter is more easily felt when stiffened by the sound."

Sims', Elliott's or Molesworth's repositors may be employed instead of the sound, but with me their use has not proved satisfactory, nor do I think that any form of mechanism has been devised that is as useful or safe as the fingers in performing this operation. The uterus having been restored, the next thing is to hold it in position. This is best accomplished at first by the use of the glycerine plug, but it may be necessary, after all danger of inflammation from the efforts at replacement has passed, to adjust a suitable pessary. The glycerine plug should be placed in the anterior fornix, and not in the posterior, as is so often done, as the object is to produce pressure backward on the cervix, which tends to keep the fundus anteverted. Sometimes it is well to insert a second and smaller glycerine plug high up in the posterior fornix.

Should it become necessary, as it most likely will, to resort to the use of a pessary, the selection and adjustment of the same will prove of great importance. It is not enough that a pessary merely stretch the vaginal walls, nor, on the other hand, will it answer to use a pessary that is too small, or whose uterine curve will allow the fundus to bend over it into an exaggerated retroflexion. If there is a tendency to the latter, it is best overcome by using Thomas' retroflexion pessary (Fig. 159).



FIG. 159.—Thomas' Retroflexion Pessary.

This is a long, narrow instrument of extreme uterine curve, and with a bulbous upper extremity, which is sometimes made of soft rubber. The Hodge pessary (Fig. 133), or Emmett's (Fig. 135), or Albert Smith's (Fig. 136) modifications of the same, are most effective, and most commonly used in retroflexion. Block tin pessaries are very convenient for those physicians who have sufficient mechanical ingenuity to mold them for the needs of each individual case. Dr. Thorburn says that "A skilled gynecologist, with a few of these and a few soft watch-spring rings, can do infinitely more to relieve suffering than a mere pedant can with a large army of special pessaries."

In using the Hodge pessary it may be necessary to adjust it as an unyielding support, its lower end pressing quite firmly

against the anterior wall of the vagina, and its upper end pressed into the posterior fornix, not to hold up the fundus, as is usually supposed, but to make traction on the cervix and thus raise the fundus by leverage. According to Thorburn, "The most valuable use of the Hodge is as a lever in itself. The lower end is free to ascend or descend, the center clings to the vaginal walls laterally, but without undue pressure, and the upper end plays in the posterior vaginal fornix. In standing or in inspiration, the weight of the abdominal contents presses downward and backward, and causes the lower end of the pessary—the power—to descend. Through the fulcrum, somewhere toward the centre of the pessary, the weight, that is, the parts resting on the upper end, is raised, thus the posterior vaginal fornix is pushed upward, and the uterine leverage comes into play secondarily, not from a hard and fixed pressure, but from a lever spring, as elastic as that of the best carriages."

In cases where the fundus is heavy and rebellious, Dr. Thomas recommends Cutter's pessary with the bulb (Fig. 160).

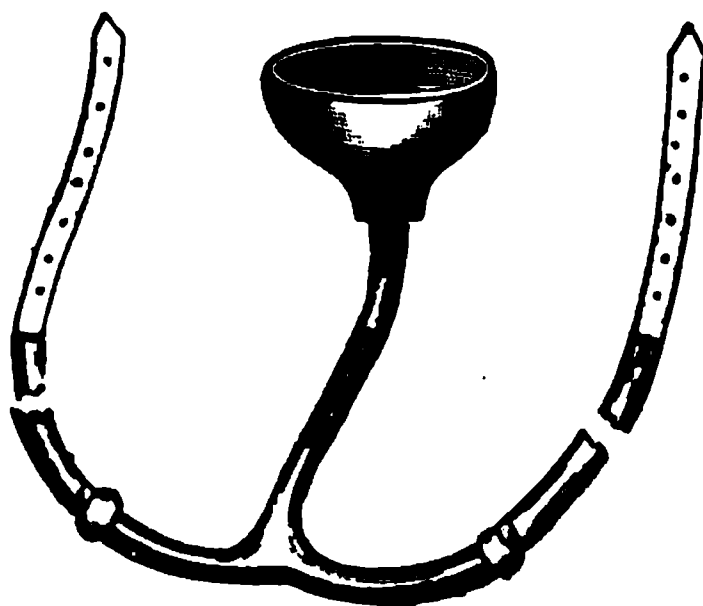


FIG. 160.—Thomas' modification of Cutter's Pessary.

He also advises, in those cases where the vagina unites itself to the cervix very low down, so "as to leave almost no post-cervical space," to use the intra-uterine stem, which is more fully mentioned under antelexion.

As Dr. E. C. Dudley well remarks, (1) "It should be urged that no man can safely apply the pessary until he has fully appreciated its indications and contra-indications. Few practitioners possess naturally the mechanical skill necessary to its proper adjustment. Of this thousands of unfortunate women bear witness. Its dangers in inefficient hands are in striking contrast with its usefulness when judiciously employed."

Dr. William Alexander, of Liverpool, has devised an ingenious operation for shortening the round ligaments as a means of

1) *Pepper's System of Medicine*, Vol. VI, p. 173.

curing posterior displacement of the uterus, which appears to have proved quite effective, and at the present time is coming into great favor with gynecologists. The operation is not exceptionally difficult in the hands of a competent surgeon, and "with reasonable care and precaution it cannot be considered dangerous." It consists in first making an incision one or two inches long on each side of the spine of the pubes, upward and outward. Then dissecting down upon the external abdominal ring, the terminal fibres of the round ligaments as they appear are caught up by a blunt hook, and are drawn out until they are felt to hold the uterus sufficiently upward and forward. The shortened ligaments are then stretched to the pillars of the external rings, and the wounds are treated antiseptically. Usually a Hodge pessary is worn for some time after the operation (1).

In all cases of retroflexion, as in other forms of displacement, it is important not to overlook the selection and administration of the indicated remedy.

8. LATEROFLEXION.

DEFINITION.—A displacement in which the uterus is bent upon itself laterally.

ETIOLOGY.—This condition is most often congenital, but it may result from inflammation of the broad ligaments, or from pel-

FIG. 161.—Thomas' Lateroflexion Pessary.

vic exudations which pull the organ down and tend to fix it in the abnormal position.

SYMPTOMS.—These are neither numerous nor characteristic. The flexion rarely becomes sufficient to cause obstruction of the uterine canal.

DIAGNOSIS.—Lateroflexion may be mistaken for the products of a pelvic cellulitis, or for a fibroid tumor, but the same principles of diagnosis that have been mentioned under other varieties of displacement will serve here.

1) The most recent literature upon Alexander's operation is embraced in the December, 1887, number of the *Annals of Gynecol.* which contains a paper by Dr. J. H. Kellogg, of Battle Creek, Mich., detailing a report of 25 cases, and a full description of his method of operating. Also abstracts of papers by Dr. Alexander and others which were read before the 9th International Medical Congress.

TREATMENT.—The same general principles of treatment should be followed as have elsewhere been given for other forms of flexion. Dr. Thomas says, (1), “Of all varieties of flexion, this is the most likely to require the use of the intra-uterine stem, for it is exceedingly difficult, I may say rarely possible, to overcome it by a vaginal instrument.”

1) *Op. Cit.*, p. 422.

CHAPTER XXVI.

9. INVERSION OF THE UTERUS.

DEFINITION.—Either a partial or complete turning inside out of the uterus, being compared by Thomas to “the bottom of a bag pushed through its mouth, so that the inner surface becomes the outer.” The inner surface of the uterine canal projects through the dilated os into the vagina.

FIG. 162 —Inversion of the uterus.

ETIOLOGY.—According to Thomas, the production of inversion depends upon the presence of “two elements,

1. Relaxation and inertia of the uterine walls ;
2. Downward traction or pressure.”

Inversion, if recent, usually occurs between the birth of the child and the delivery of the placenta, and is ordinarily supposed to be due to undue traction made upon the cord in the delivery of the latter, but Dr. Emmett thinks that “the injury is rarely due to this cause.” Doubtless, however, this is sometimes a cause of inversion, as may also be the traction made in the sudden delivery of the child. Sudden muscular efforts, such as coughing or sneezing, or even a change of posture, may cause inversion when the uterus is in a very relaxed condition. Inversion, more rarely as a chronic condition, arises gradually from the traction of tumors attached to the uterine walls. According to Fritsch, (1) “Should there be

1) Op. Cit., p. 222.

a tumor exactly in the fundus, should the surrounding uterine tissue atrophy or undergo fatty degeneration, the tumor glides into the uterine cavity. Partly by the weight of the tumor, partly by the uterine contractions, the tumor—dragging the uterus along—is forced deeper. Finally the tumor passes through the os uteri, even in front of the vulva. Both benign and malignant tumors may lead to inversion.”

PATHOLOGY.—The anatomy of this condition is thus described by Schröder: (1) “The uterus, turned inside out and lying within the vagina, presents a rounded, sometimes quite swollen body, with a somewhat puffy, reddish or bluish surface (the inflamed



FIG. 163.—Stages and degrees of inversion of the uterus: *a*, chronic inversion as ordinarily encountered; *b*, complete inversion of the cervix; *c*, partial or commencing inversion of the fundus; *d*, inversion commencing at the lower portion of the body.

uterine mucous membrane). At its upper portion the tumor becomes narrower, and forms a sort of pedicle lying between the lips of the os. These latter are distinctly to be felt, for a complete inversion of the organ seems to be impossible, the cervix, through which the inverted uterine body has descended, retaining, at least in part, its normal position. This is particularly true of the anterior lip. The cervix is completely involved in the inversion only when strong traction is made on the uterus; perhaps, in some exceptional cases, also, through the weight of the tumor. After opening the abdominal cavity, on the dead subject, the site of the uterine body is seen to present a funnel-shaped depression, into which the tubes and ligaments of the uterus lead. In cases of long standing this funnel is very narrow (one-fifth of an inch at the outside), and the ovaries do not lie in it. At a later period the uterus may undergo material changes; a process of involution takes place, and the mucous membrane becomes smooth—more like a serous surface.”

SYMPTOMS.—Should inversion occur suddenly, as in the puerperium, the patient will have considerable pain, vesical irritation

1) *Op. Cit.*, p. 218.

and hemorrhage, accompanied by symptoms of shock and collapse out of all proportion to the loss of blood. This may endanger the life of the patient, but more often she rallies in spite of the hemorrhage, which continues in a mild degree, eventually producing a profound anæmia. If the inversion is discovered and the uterus immediately replaced, with proper care no further trouble will ensue. If not discovered, septicæmia may result and cause a fatal termination, but more often the symptoms are not urgent, the character of the case remains undiscovered, and the patient gets up from her confinement feeling miserably, yet able to attend to her ordinary household cares. In some instances no symptoms are present, except, perhaps, a slight backache and leucorrhea, and the condition is discovered only by accident years after. More often, however, the hemorrhage is more or less constant; there is considerable difficulty in walking; dragging pain in the back and loins; disturbances of the bladder and rectum; anæmia; nausea and vomiting, especially on assuming the upright posture; palpitation and irregular action of the heart; œdema of the face and lower extremities, and other symptoms which result from the loss of blood. Sometimes contraction of the cervix about the fundus produces gangrene, with its usual consequences. Should the inversion result from the traction of a fibroid tumor, the symptoms come on gradually, but do not differ essentially from those already described. After a time the patient usually becomes bed-ridden, but this is not always the case. Emmett says (1) that "Instances have occurred where women have had the vitality to resist the consequences of inversion of the uterus for twenty or thirty years, until, at length, with the change of life, the drain has ceased."

DIAGNOSIS.—This can be determined only by a careful physical examination, an anæsthetic being usually required. As the physical appearance of an inverted uterus is often strikingly similar to that of a polypus, there might be some difficulty in differentiating between the two. This can usually be accomplished, however, by a careful conjoined manipulation. When the inversion is only partial, the diagnosis from a fibroid tumor is often more difficult. Thomas presents the following tables of differential signs:— (2)

IF IT BE A POLYPUS.

The probe will usually pass into the uterus;

Conjoined manipulation will reveal the uterine body;

IF IT BE INVERSION.

The probe will be arrested at the neck;

Conjoined manipulation will reveal a ring where the uterus should be;

1) Op. Cit., p. 407.

2) Op. Cit., p. 429.

Rectal examination will reveal the uterus *in situ*;

Recto-vesical exploration will reveal the uterus;

Acupuncture will give no pain.

IF IT BE A FIBROID GROWTH.

The probe will show increase of uterine cavity;

Conjoined manipulation and Simon's method will reveal rotund body of uterus;

It will have come on very gradually;

It will have no reference to parturition;

Acupuncture is painless.

Rectal examination will not reveal the uterus *in situ*;

Recto-vesical exploration will not reveal the uterus;

Acupuncture will give pain.

IF IT BE INVERSION.

The probe will show diminution of uterine cavity;

Conjoined manipulation and Simon's method will reveal small abdominal ring;

It will have occurred more suddenly;

It usually follows parturition;

Acupuncture gives pain.

The prognosis is unfavorable without operative interference. Even in old cases the prolonged hemorrhages may produce such profound anæmia and prostration as to lead to a fatal termination, and degeneration of the tumor may cause septicæmia. Reposition, however, may be accomplished in most cases, even in those of very long standing. Spontaneous reposition may take place, but is extremely rare.

TREATMENT.—Treatment consists in the reposition of the inverted uterus, or, if that fail, amputation of the organ, provided the symptoms are of sufficient gravity to warrant such an operation, which would especially be the case if the uterus was gangrenous, cancerous, or the seat of extensive ulcerations.

REPOSITION.—This may be accomplished by the hand alone; by the hand assisted by instruments; or by a combination of these methods, with continuous slight elastic pressure. Efforts at reposition should be preceded for a few days by quiet rest in bed, and the frequent use of hot water injections for the purpose of reducing congestion and checking any hemorrhage that may be present. At the time of the operation the bowels and bladder should be emptied and the patient put under the influence of an anæsthetic and placed on her back upon a firm table. The left hand is then made to press firmly on the external abdominal walls, and the uterus being grasped between the fingers is steadily pushed upward through the cervix (Fig. 164). The first part of the operation is usually easily performed, but when the inverted fundus reaches the external os its progress becomes much more difficult. At this stage reposition is greatly aided by separating the fingers so as to distend the cervix as much as possible. Should this method fail, a colpeurynter filled with air or water may be placed in front of the uterus. This causes a softening of the tissues and more or less diminution in size of the organ, and slowly forces it through the cervix. Fritsch says that "This method succeeds in

cases in which the employment of the greatest force and repeated attempts have led to nothing. The re-inversion ensues both slowly and imperceptibly, and without violent contractions of the

FIG. 164.—Reposition of the inverted uterus with the hand alone (after Emmett).

uterus." On the contrary, Emmett says: (1) "This plan is one scarcely worthy of reference in comparison with other means at command. It is one which almost always produces a great deal of disturbance, often causes cellulitis, and it is doubtful if the method is ever successful when employed alone. It has certainly proved in my experience a useless waste of time at least, if no other disadvantage followed its use." Should attempts at reposition with the hand fail on account of the inability of the hand to keep up a continuous pressure, White's repositor may be used. This consists of a cup set on a curved iron rod with a spiral spring to make the pressure equal (Fig. 165). The operator steadies the cup against the fundus with the hand, and makes pressure against the spiral spring with his chest.

Næggerath's method consists in placing the index finger upon one horn of the uterus, the thumb upon the other, and so compressing as to invert one or both cornua. This method should only be employed for reducing the body after the neck has been replaced.

Courty's method (2) consists in passing the index and middle

1) Op. Cit., p. 433.

2) Cincinnati Lancet and Observer, March, 1878.

fingers of the right hand up the rectum, and with the left hand or a noose drawing down the uterus until these fingers get fairly above the cervix so as to press on the margins of the peritoneal depression; grasp the uterus now with the left hand, turning it so

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FIG. 165.—WHITE'S REPOSITOR, WITH ELASTIC SPRING PLACED AGAINST THE OPERATOR'S CHEST. While the right hand steadies cup and uterus, counter-pressure is made with the left, or better by an assistant.

that the fundus is toward the symphysis and the cervix toward the sacrum; finally make pressure with the thumb and index finger in

FIG. 166.—Tait's method of making counter-pressure with fingers in bladder and rectum (Mundé).

the angle of reflection against the two fingers in the rectum. Tait's method (1), (Fig. 166), consists in the introduction of the index

1) *Maladies de l'Uterus*, 1866.

finger of the left hand into the bladder, and that of the right hand into the rectum. With these fingers catch and stretch the contracted cervical ring, while both thumbs are made to press the fundus upward and toward the cervix. By this method, in half an hour's time, Tait reduced a case of forty years' standing.

These methods having failed, recourse may be had to a continuous elastic pressure, which is produced by having a wooden cup set on a stem, the cup being made to embrace the fundus, pressure being obtained by means of four elastic bands, which pass, two in front and two behind, to a broad abdominal bandage (Fig. 167). The cup should be lined with cotton soaked in carbolic

FIG. 167.—Cup with stem and elastic bands, which are fixed to an abdominal belt, for gradual reduction of inversion (Thomas).

oil, which should be renewed daily, and the vagina well washed out. Great care should be taken that the pressure is made in the proper direction and that the cup does not slip away from the inverted fundus. Counter-pressure is made by a thick pad of cotton wadding placed directly over the fundus and held in position by attaching it to the abdominal bandage. Unless contra-indicated in some way this treatment should be employed for at least three or four weeks, if it does not sooner prove successful.

Gentle manual treatment may in most cases be kept up for several hours if necessary, and should be persistently continued, unless contra-indicated, until it is reasonable to conclude that further efforts are useless. Numerous cases are reported where reposition has been effected after an inversion has lasted for many years. Emmett says, "as long as the etherization is well borne by the patient, no case must be despaired of in consequence of the apparent want of progress, for at any instant the reduction may be suddenly completed."

In cases where the fundus has been pushed above the level of the external os, and further reduction seems impossible, Emmett (1) recommends denuding the inner edge of the cervix, and



FIG. 168.—Emmett's method of retaining the partially re-inverted fundus by closing the os externum with sutures. The traction, produced in the direction of the arrows, favors re-inversion (Emmett).

securing its surface with wire sutures, leaving an opening at each angle of the line for the free escape of the secretions and menstrual flow. The fundus being thus imprisoned in the cavity of the neck, tends to dilate the constricted os internum, after which the stitches may be removed and pressure again employed, and sometimes spontaneous reposition has followed without further manual treatment. In cases that prove irreducible, rather than perform amputation, Thomas recommends abdominal section over the cervical ring, dilatation with a steel instrument, made like a glove-stretcher, and reposition of the inverted uterus by any one of the methods mentioned, by the hand in the vagina.

Amputation of the uterus has been performed in several different ways, but it is a dangerous operation at best, and should never be resorted to except where the uterus is either cancerous, gangrenous, or extensively ulcerated. Dr. Emmett considers the operation so hazardous that he would not resort to it "under any circumstances." This being the case it is hardly worth while to occupy the space necessary to detail the different methods of operation; suffice it to say that these consist either in the use of the ligature, the ecraseur, or the knife, or in a combination of the ligature with either the ecraseur or the knife.

1) Op. Cit., p. 481.

CHAPTER XXVII.

FIBROID TUMORS OF THE UTERUS.

SYNONYMS.—Myoma; Fibro-myoma; Fibrous Tumors.

DEFINITION.—A localized hypertrophy, or partial hyperplasia within the uterine tissue.

The origin of fibroid tumors is within the muscular structure, and they include both the fibrous and the connective tissues, hence the name, sometimes given, of fibro-myoma, which is probably the most accurate of the various designations; yet, for the reason that fibrous tissue is usually predominant they are ordinarily known as fibroids, the term merely signifying that they resemble fibrous tissue, but not conveying the idea that they are of necessity exclusively fibrous in their structure. They may be limited to a small, localized mass within the uterine tissue, or may involve nearly the whole uterus, and they sometimes assume enormous proportions. Occasionally they undergo cystic degeneration, or, rather, an oedematous softening or liquefaction occurs in more or less of the growth, and the tumor is then termed a fibro-cyst.

PATHOLOGY.—It might be inferred from the definition given that a fibroid tumor is a localized hypertrophy of uterine tissue, but, on the contrary, it is a distinct new growth developed within the uterine tissue. As Schröder says, a fibroid does not “represent a mere diffuse enlargement of the uterus, but develops itself as a distinct round tumor, plainly separate from the parenchyma proper.”

Fibroids are most often found in the posterior wall of the body of the uterus, though occasionally they are present in the anterior wall of the body, or in the cervix. Microscopically they consist of non-striped muscular fibre and fibrous tissue, which are irregularly distributed, and of varied proportions, usually the fibrous tissue being in excess, such tumors being well marked from the wall of the uterus, and of slow growth; but occasionally the muscular tissue predominates, the tumor not being circumscribed, and the growth being rapid. The latter are true myoma, while the former are fibro-myoma.

A myoma is of a pale flesh color and of soft consistency, while a fibro-myoma is pale, having less of the flesh color, is more dense and firm in its consistency, almost cartilaginous, thus appearing more like a foreign body embedded in the softer muscular tissue;

when cut, the surface presents a glistening, satin-like appearance, and is uneven or lobulated, the pressure of the fibrous bands throwing up ridges upon it.

“As a rule, the uterus is hypertrophied, its walls are thickened; sometimes, however, especially in subperitoneal fibroids, it may be thinned by reason of being drawn out in length; and in old women it may be greatly atrophied.

“Blood-vessels enter the tumor with the bands of connective tissue, though usually they are but few in number. It is exceedingly rare that any larger arteries dip into a fibroid.

“The tumor apparently lies as a foreign body within the muscular substance of the uterus, inasmuch as it is separated by a capsule of loose connective tissue, from the parenchyma of the organ, and can readily be enucleated. Still, its development always begins in the uterine tissue itself, as a local hyperplasia, and it is not till later, when the well defined tumor grows by the multiplication of the elements belonging to it, that it pushes the muscular fibres of the uterus apart, lies between them, and is capable of being separated from them and turned out. Nevertheless, a large fibroid is often continuously attached to the uterine parenchyma by quite a broad base.

“On the other hand, the tissue by which the tumor is attached to the uterus, and out of which it was, in fact, developed, readily atrophies; so that, then, the fibroid actually has no longer a continuous connection with the parenchyma of the uterus. In the latter case, the blood-vessels become obliterated at the same time with the pedicle, so that scarcely any vessels enter the substance of such an isolated and embedded fibroid.” (1).

In exceptional cases, especially of the large interstitial variety, a cavernous structure is developed consisting of dilated blood-vessels. This form has been designated by Virchow as “*Myoma teleangiectodes seu cavernosum*.”

Fibroid tumors are liable to undergo degeneration, either by softening, induration, calcification or suppuration.

Softening may, according to Schröder, be due to simple œdema, to fatty degeneration or to myxomatous degeneration.

Only a very slight degree of œdema may be present, or it may occur to such a degree as to drive apart the connective tissue, and, filling the gaps thus left, give rise to distinct fluctuation, and constitute what are known as fibro-cystic tumors of the uterus. This form of degeneration is most apt to occur in the submucous or interstitial varieties, but may take place in subperitoneal.

The latter is sometimes called mucous degeneration, and con-

1) Schröder, Ziemssen, Vol. X., p. 224.

sists in the deposit of intercellular mucus from the mucous tissues which exist within the tumor.

Induration occurs in connection with fatty metamorphosis, the latter occurring in the muscular tissue, while the fibrous connective tissue becomes indurated and contracts, causing atrophy of the tumor.

Calcification is liable to follow induration, a deposit of the salts of lime taking place, the whole mass becoming a ball of calcareous matter. This form of degeneration occurs only in the subperitoneal and interstitial varieties. Sometimes the calcareous mass projects into the uterus, and is discharged per vaginam, constituting what the old writers described as uterine calculi.

Suppuration may take place when the source of nourishment of the tumor has been cut off. This may occur in subperitoneal fibroids from twisting of the pedicle, or in connection with calcification, but it most often occurs in submucous tumors as a result of traumatic influences, especially from operative interference. In such cases either the whole of the tumor or pieces may be discharged per vaginam. These pieces are frequently gangrenous, and have an intensely disagreeable odor. Again, if subperitoneal, the tumor may perforate the abdominal walls; or, failing to do so, give rise to septic poisoning and fatal peritonitis.

Cancerous or sarcomatous degeneration of a fibroid may take place, but this is of rare occurrence. Most often when the fibroid is found to be cancerous it will be discovered that the cancerous condition is secondary, having resulted as an extension of this disease from adjacent tissues, or from a distinct carcinoma existing in the cervix.

VARIETIES.—Klob divides fibroid tumors into two general classes, simple and compound. A simple fibroid is one in which there is but one tumor, a compound fibroid is where there are several small tumors united by loose connective tissue. A simple fibroid is usually spherical in form, smooth, and connected with the uterus by loose connective tissue. A compound fibroid is more vascular than the simple variety, and is nodulated, and not smooth.

These varieties are clinically divided into subperitoneal, interstitial, and submucous, according to their locality. All fibroids are interstitial at the start. Should one form in the external layers of the uterus it will naturally develop toward the peritoneal cavity, rather than into the resistant uterine tissue, and become subperitoneal, or subserous. Such a tumor may be sessile, and remain attached to the uterus by a broad base, sometimes assuming enormous proportions, or may form a pedicle, the length of which determines its mobility. Sometimes the pedicle is broken

and the tumor rolls about in the abdominal cavity, or, adhesive inflammation being set up, becomes attached to some other of the abdominal viscera. Sometimes the pedicle becomes twisted, and oedema or gangrene follows with the usual consequences.

Pedicated subperitoneal fibroids are usually compound, and are said to be especially prone to calcification. They often draw the uterus forcibly upward, causing elongation and increasing its depth, and sometimes also causing axial rotation with consequent hydrometra. Virchow says, that the body may even be torn from

FIG. 169.—Typical varieties of fibro-myomata, semi-diagrammatic: 1, subserous; 2, submucous; 3, interstitial; 4, intra-uterine polypoid; 5, cervical.

the cervix by the traction, and one such case is reported by Pinolini.

Should the tumor begin to form near the middle of the uterine wall it will remain interstitial, though, when it becomes of great size, it may crowd the peritoneum, or even partially protrude within the uterus. Interstitial tumors may be simple, and reach enormous dimensions, but they are more often compound, there sometimes being as many as fifty present in one uterus. As to location, they are most frequently found in the posterior wall near the fundus, the opposite wall usually becoming quite thin, and the uterine cavity considerably distorted and enlarged.

If the tumor begins to form within the inner layers of the uterine muscular tissue, it will develop toward the uterine cavity and become submucous. Submucous fibroids may remain

attached by a broad base, but more often form a pedicle, and are then known as fibrous polypi, and constitute the most frequent and probably the most important variety of fibrous growths. They are at first round, but afterward become pear-shaped or oval. Their presence in the uterine cavity may give rise to contractions of that organ and cause their extrusion into the vagina, their pedicle still remaining intact, or, their capsule may rupture and allow the tumor to be discharged in shreds.

Fibrous polypi are softer than other fibroids, and more subject to degeneration, though they never become calcified.

ETIOLOGY.—Schroeder says: (1) “Nothing at all is known with regard to the causes which determine or favor the development of fibroids. Undoubtedly some local irritation is at the bottom of it, but as to the variety or the origin of this irritation, we are completely in the dark.”

This is the view entertained by most writers, yet Virchow and Winckel, both make great efforts to establish a cause for the development of fibroids. Fibroids occur mostly during the period of sexual activity, and in the married, especially those who have borne children, and they are said to occur most often in negroes; they are not traceable to previous pelvic inflammations or to traumatic influences, though these are mentioned as possible causes by Winckel. Thorburn says that fibroid tumors of the uterus are associated as accidental redundancies with those changes of tissue which are perpetually recurring from month to month in the uterus.

SYMPTOMS.—The symptoms of fibroid tumors depend very largely upon the complications that may exist. Subperitoneal and interstitial tumors give rise to but few subjective symptoms, frequently none at all, but the submucous variety is ordinarily accompanied by many symptoms, some of which are rarely absent.

The symptoms of fibroid tumors in general may be tabulated as follows:

1. Menorrhagia or metrorrhagia;
2. Dysmenorrhea;
3. Leucorrhea;
4. Pain and discomfort throughout the pelvis;
5. Symptoms resulting from pressure of the tumor upon either the bladder, rectum, blood-vessels, nerves or ureters;
6. Sterility and abortion are frequent consequences.

Subperitoneal fibroids, as a rule, give rise to no symptoms other than those usually found with all large abdominal tumors—a sense of weight and fullness, pain in the back, neuralgia of lower extremities, constipation, dysuria, bearing-down, impaired nutri-

1) Op. Cit., p. 223.

tion, dyspnœa, etc. All symptoms are usually aggravated during the menstrual period. Small subperitoneal fibroids give rise to little or no inconvenience.

The irritation of the tumor may give rise to ascites, or to a circumscribed peritonitis with consequent adhesions, agglutinations and formation of false ligaments. Chronic metritis often occurs as a complication, presenting its usual variety of symptoms.

Interstitial fibroids, if small, give rise to but few symptoms. They may cause dysmenorrhea by interfering with the expansion of the uterus during menstruation, and being usually situated in the upper part of the fundus, they may cause by their weight more or less anteflexion or anteversion, or occasionally retroflexion, with the usual symptoms consequent upon these displacements.

When an interstitial fibroid becomes large it produces a train of symptoms caused chiefly by pressure—difficult breathing, paralytic weakness, œdema, constipation, hemorrhoids, dysuria, strangury, and sometimes retention of urine. If the tumor grows downward it may split the cervix, enter the vagina, become gangrenous and produce septicæmia.

Hemorrhage is the most important symptom in most cases. This arises from the great plethora of the tumor and uterus, as well as from the increased surface and hypertrophy of the endometrium, and consequent dilatation of the blood-vessels. The hemorrhages are sometimes very great, and fatal cases are reported, protracted menstruation, with occasional irregular hemorrhages supervening. Sometimes there may be no hemorrhages for months, when suddenly they reappear with alarming violence; or, they may be present oftener, the patient scarcely recovering from the effects of one hemorrhage before she is prostrated by another. Such patients are usually anæmic, but do not show the waxy pallor of countenance that is present when the hemorrhages result from carcinoma. Frequently these tumors grow to a very large size, sometimes assuming colossal proportions. Fig. 170, taken from Winckel, illustrates a fibro-cyst of the uterus, operated upon by Professor Severanu, which weighed 195 pounds, and contained 17.5 pounds of a coffee-ground sediment. The distance from the sternum to the symphysis over the tumor was three and one-half feet, and its circumference at the level of the umbilicus was six feet.

Submucous fibroids give rise to the same class of symptoms as are characteristic of pathological conditions of the endometrium—hemorrhage, leucorrhea and uterine colic being the most important. Hemorrhage does not occur from the tumor, which is feebly vascular, but from the mucous membrane, and not that which covers the surface of the tumor, where it is usually very

thin, but from the hypertrophied mucous membrane of the uterine cavity, where the veins are large and distended, and their walls thin. The hemorrhages are very irregular as to time and quantity, sometimes being but a slight menorrhagia, at other times almost uninterrupted, and again they may occur at irregular intervals with great violence.

The leucorrhea is usually profuse, more or less albuminous in character, and is caused by distension of the endometrium. The

FIG. 170.—Enormous cystic myoma.

uterine colic is usually present as a consequence of obstruction created by the presence of the tumor in the uterine cavity. The menstrual fluids being retained the uterus becomes dilated, and its contents are expelled by spasmodic labor-like pains. In submucous "polypi," the congestion of the parts during menstruation may cause the polypus to swell, and thus produce uterine contrac-

tions, which may force the polypus to extrude at the vulva, and thus bring about inversion of the uterus if the pedicle is strong, and absorption of septic material occur. If the contractions cease, the polypus may return to the uterine cavity, and be expelled again whenever the contractions are renewed. If it does not return and the pedicle becomes compressed, gangrene and sloughing may occur, giving rise to septicæmia. If nourishment through the pedicle is not interfered with, the polypus may continue to grow in the vagina, or very rarely, the pedicle becoming more and more elongated, the tumor hangs outside the vagina, and constitutes what has been called a "myoma pendulum."

The symptoms of a submucous polypus are essentially the same as those of a non-pediculated fibroid. They cause very considerable irritation of the mucous membrane, which often results in a profuse serous discharge, and this irritation may cause mucous polypi to spring up about the pedicle, and thus add to the source of irritation already existing.

CHAPTER XXVIII.

DIAGNOSIS AND PROGNOSIS OF FIBROID TUMORS.

THE physical signs of fibrous growths are usually so characteristic and striking that the diagnosis is comparatively easily made, but in some cases, especially in tumors of small size, the diagnosis is attended with great difficulty, and when inflammation is also present, it may prove impossible.

Vaginal touch, abdominal palpation, and especially the bi-manual examination, are of great importance. To make the examination the patient should be placed upon her back, with the legs flexed. All constriction should be removed, and the bladder and rectum emptied.

In considering the very important question of physical diagnosis I shall, for the most part, follow Hart and Barbour (1) whose article on that subject I consider exceptionally intelligible and accurate. They say that "Physical diagnosis is best considered under two heads: (a) Of small fibroid tumors, up to the size of a walnut or egg; (b) Of larger ones, which rise up as a distinct tumor into the abdomen."

A—OF SMALL FIBROID TUMORS.

"1. Pediculated submucous fibroids should be easily recognized. When they are small and not projecting through the os, we have to dilate the cervix to ascertain their presence and attachment; when larger and projecting into the vagina, they may readily be mistaken for inversion of the uterus. On sweeping the finger round the base, we recognize the commencement of the cervical canal unless the polypus be adherent at its neck, leading to obliteration of the canal. Further, the bi-manual or rectal examination shows the fundus uteri to be in its normal position.

"2. Small *interstitial* fibroids, when situated *low down* and causing bulging of one lip of the cervix, give rise to difficulty; owing to the great enlargement of one lip, the os is displaced to the other side and its form altered to that of a mere slit, which easily escapes observation. Such cases have been occasionally mistaken, even by the most experienced, for inversion. The mistake is prevented by examination per rectum. Further, the sides and base of the tumor must be carefully scrutinized to discover the os;

1) Op. Cit., p. 892.

when this is found, the sound will show the position of the uterine cavity.

“3. *Interstitial* fibroids placed *high up* in the uterus, or small *subserous* ones with a *broad base* of attachment, often escape detection. To ascertain their presence we proceed as follows: Pass the sound; this defines the course of the uterine canal and the position of the fundus. Now make the bi-manual examination with the sound; the finger in the anterior fornix detects the thickening of the anterior wall, produced by a small fibroid. Now steady the sound with the left hand, and pass the forefinger of the right hand into the rectum so as to feel the sound lying in the uterus. Should there be a fibroid in the posterior wall, the finger recognizes an unusual thickness of tissue between it and the sound. Carry the sound, firmly grasped by the left hand, toward the symphysis, so as to bring the fundus better within reach of the rectal finger; and, by moving it from side to side, ascertain whether the tumor is intimately connected with the uterus so that it moves along with it. From their being largely composed of fibrous tissue, these tumors are firmer than the uterine wall; the *localized hardness*, therefore, helps us in recognizing them.

“Small fibroid tumors require to be diagnosed from

“Chronic metritis,

“Early pregnancy,

“Ante- and retro- flexion.

“In *chronic metritis* the uterus is not globular but flat, and the enlargement is equable; the uterine canal is patulous; the os is everted, and shows catarrhal patches. We must remember that chronic metritis is occasionally present along with a fibroid tumor.

“In *early pregnancy* the uterus is soft and elastic; the cervix is generally softened, while in fibroids it remains hard. Pregnancy, however, may occur in a uterus which is already the seat of a fibroid tumor; and in such a case the diagnosis becomes certain only after the uterus is considerably enlarged. The possibility of pregnancy must specially be kept in mind here, as we involuntarily think of using the sound to aid in detecting fibroids.

“*Anteflexion* is closely simulated by a fibroid in the anterior wall; a body is felt in the anterior fornix, continuous with it but separated by a groove. Similarly, a fibroid in the posterior wall has all the characters of the *retroflexed fundus*. Examination by the sound, and especially by the sound plus the bi-manual, clears up the case.”

B—OF LARGE FIBROID TUMORS.

“*Palpation*.—The tumor has a well-defined outline, and a firm, solid consistence. It is intimately connected with the uterus;

this is best ascertained by laying hold of the cervix with the volsella, when the cervix will be found to move along with the abdominal tumor. Subserous fibroids have a certain range of free movement depending on the length of the pedicle. In soft fibroids, there may be intermittent contractions. *Percussion*.—The note is absolutely dull, unless intestines come between the tumor and the abdominal wall. *Auscultation*.—The uterine souffle is heard most distinctly at the sides, sometimes all over the tumor. As the uterine souffle simply means enlarged uterine arteries, there is no souffle when these are not enlarged; hence it is absent in subserous fibroids with a small pedicle. *Vaginal examination*.—Should the tumor be large and lifting the uterus in the abdomen, the cervix will be high up; or it may be displaced in various ways, according to the position of the tumor; it has a firm consistence. *Bi-manual examination*.—With pediculated subserous fibroids, the uterus is felt distinct from the tumor; with interstitial and submucous, we simply feel a large mass continuous with the cervix. *The Sound*.—This should not be used till all possibility of pregnancy has been excluded. In doubtful cases, we wait three or four months, till the positive signs indicative of pregnancy all have had time to develop. From the use of the sound we learn (1) the length, (2) the direction of the uterine cavity. The length of the cavity is always increased in submucous, and generally in interstitial, but not in subserous tumors; it may measure six or eight inches. The direction of the canal is often tortuous in submucous tumors; hence the passage of the sound is difficult, sometimes impossible. We feel that the sound goes so far and then catches on a hard projection. In such a case a soft bougie is very useful, as its flexibility allows it to pass the obstruction. Usually the sound passes to only one side of the tumor; sometimes we can sweep it more or less round the tumor, showing that it projects free into the uterine cavity.

- “ Large fibroid tumors require to be diagnosticated from
 - “ Advanced pregnancy,
 - “ Ovarian tumors,
 - “ Extra-uterine gestation,
 - “ Hematocoele and inflammatory deposits.

“ In *advanced pregnancy* the uterus is of softer consistence and shows ballottement—the indication of a solid within a fluid; further, we can feel the parts of the foetus. It becomes considerably harder under the hand, especially if we make the patient change her position; this *variation in consistence* is a most valuable diagnostic, as it is rarely present in fibroid tumors. We hear the uterine souffle, and, unless the child be dead, we hear in addition the *foetal heart*; the possibility of the child being dead should

always be kept in mind. On vaginal examination, there is discoloration of the vaginal walls with free secretion; the cervix is softened. There is usually amenorrhea corresponding in duration to the size of the uterus.

“*Ovarian tumors* are soft and elastic; small ones may be firm. There is no uterine souffle. They only give rise to difficulty in diagnosis when they have become adherent to the uterus, and move along with it. It is sometimes impossible to diagnose between them and cystic fibroid tumors.

“In *hematocele and inflammatory deposits* we have the history of the attack to guide us. It may be impossible to form a diagnosis on first examination; but after watching the case for a few weeks and noting any change in the deposit in addition to ascertaining its precise situation, we can form a diagnosis. Pelvic peritonitis frequently occurs round a subperitoneal fibroid, or any fibroid producing pressure; and in such a case it may be impossible to diagnose between the tumor and the effusion round it. Many cases reported of gradual absorption of a fibroid tumor, under treatment, were probably cases of mistaken inflammatory exudation.”

Extra-uterine gestation presents great difficulty in diagnosis; the tumor, however, is softer and more yielding, and of more rapid growth than a fibroid, and shows its cystic nature from the beginning, whereas a fibroid grows to considerable size before it becomes cystic.

PROGNOSIS.—Fibroid tumors rarely end fatally, yet they do in a sufficient number of cases to prevent the prognosis being altogether favorable. Very frequently the tumor remains during life, with but little change either in size or consistency, and causing comparatively little inconvenience, though sometimes interfering with nutrition and impairing the vital powers. In other cases the patient may suffer considerably, and relief come only at the climacteric. In some instances a cure may occur spontaneously, either by fatty degeneration and absorption, or through arrest of growth by means of induration or calcification. In pedunculated submucous fibroids traction may cause the pedicle to break, and the tumor be spontaneously expelled. Occasionally from interference with the nourishment of the tumor, either by twisting of the pedicle, or other causes, the tumor sloughs or becomes gangrenous, and results in septicæmia or pyæmia, and death follows. In rare instances death has resulted from hemorrhage.

CHAPTER XXIX.

TREATMENT OF FIBROID TUMORS.

THE symptomatic treatment of fibroid tumors has not proved very satisfactory, so far as their radical cure is concerned; yet, as a means of palliation, medicines have frequently afforded comparatively good results. I have now a case of interstitial fibroid in the posterior wall of the uterus, which has been in my hands nearly a year, and which has very perceptibly diminished in volume, and has become much less annoying to the patient, the hemorrhages having almost entirely ceased, under the continued use of *Ustilago maidis*.

I have also frequently obtained temporary ameliorations of the symptoms produced by the pressure of a fibroid, with an apparent shrinking of the tumor, by the use of *Secale cor.* in a low attenuation. The latter drug, however, is usually given in hypodermic injections of from three to six drops of Squibb's solution two or three times per week. Simpson recommends the following formula :

Ergotinæ 3ii
Aquæ 3vi
Chloral hydrate 5ss. Mix.

Twelve minims of the solution should be used at each injection.

According to Winckel, (1) "The best article for use is the officinal preparation of the German Pharmacopœia, 37½ grains being dissolved in 225 minims of distilled water and ¼ grain of salicylic acid being added, but no alcohol or glycerine employed. This solution will not decompose for years, and scarcely ever causes indurations or abscesses. I have treated a patient for more than ten years, who during this time has had 1500 injections given, and no abscess followed."

The preparation should be fresh, and the injection be made with great care as regards the admission of air or septic matter. The injection is best made in the abdomen or in the gluteal region, the point of the instrument being made to plunge much deeper into the muscle than when injecting morphine. Sometimes ergotism is induced by this method, and if so the injections should be discontinued at once. According to Fritsch, (2) "The theory of its action is, that the intact layers of uterine parenchyma contract:

1) Diseases of Women, p. 426.

2) Diseases of Women, W. Wood & Co., p. 237.

these contractions cause both shrinkage of the vessels with consequent defective nutrition of the myoma, and direct pressure upon the myoma. A proof of the correctness of this view is furnished by the not infrequent cases in which myomata necrose during the ergotin treatment, and the everyday observation that painful uterine contractions follow injections of ergotin.

"Success is to be expected only when an intact muscular layer surrounds the myoma. Subperitoneal myomata with thin pedicles are not influenced by ergotin. Interstitial or submucous myomata experience both effects of ergotin, while polypi may be pressed out of the uterus by ergotin, but of course cannot be directly diminished."

The treatment should be continued for some time, at least for two or three months. It sometimes causes the entire disappearance of the tumor, but, if not, it frequently checks the disposition to hemorrhage, and ameliorates all the symptoms.

The application of the internal remedy generally depends more upon the symptoms, which are a result of existing complications, than upon those which are a direct result of the growth.

For this reason we may be required to select our remedy from a large group of medicines which have been found most useful in such conditions, having in view solely the selection of the indicated remedy as accurately as possible. In addition to the *Ustilago maidis* and *Secale cornutum* already mentioned, we may have recourse to *Belladonna*, *Sabina*, *Viburnum op.*, *Lachesis*, *Sepia*, *Calcarea carb.*, *Ipecac*, *Crocus*, *Arsenicum*, *Cinchona*, *Phosphorus*, *Nitric acid*, *Sulphur*, and many other remedies.

Dr. Ludlam says (1) he could detail a number of cases in which the careful and persistent employment of *Belladonna* has removed a limited hypertrophy of the womb which, but for it, would undoubtedly have developed into a fibroid. It was given in the third decimal attenuation. He also speaks highly of the use of *Lachesis*, "particularly when there is a defective involution of the womb." I would also suggest *Lilium tig.*, in a similar class of cases.

The same author, whose observations have been more extensive than those of any other gynecologist in our school of medicine, and whose experience is invaluable, says that he is "persuaded, as to the result of experience, that, in their early stages, these tumors are often curable by the use of internal remedies conjoined with very simple local means." As regards the local means to which he refers he is "in the habit of employing the cotton tampon saturated with pure glycerine, or with glycerine containing a few drops of the strong tincture of *Calendula*, of

1) *Diseases of Women*, p. 1061.

Hamamelis, Hydrastis, or of the same medicine that is being taken internally. This is an excellent adjuvant to the cure, and has the effect in many cases to avert the occurrence of frequent and dangerous hemorrhages."

The immediate control of hemorrhage is often an important matter. The patient should be placed in a recumbent posture, with the hips elevated, and treated with ice bags over the hypogastrium and lumbar regions, or, as I very much prefer, receive continuous vaginal injections of hot water at a temperature of about 105° F. At the same time she may receive the indicated remedy—Belladonna, Sabina, Trillium, Ipecac, etc.

Should these measures fail, resort may be had to tampons prepared from sponges, which are compressed and saturated with a solution of sulphate of alum. They may be prepared by taking a fine sponge, large enough to fill the vagina, passing a piece of string through the center to aid in its removal, and then, after dipping it in the solution, winding it with twine from one end to the other, compressing it into as small a space as possible. The twine should so compress the sponge as to make it assume an elongated form. It should then be laid aside and permitted to dry. Several sponges should be thus prepared. When necessary the twine may be unwound and the sponge introduced. Its size when in the dry condition will allow of an easy passage into the vagina, where the moisture will cause it to expand, and fill up and seal the vagina so as to absolutely check the discharge. If the attending physician is present he may tampon the vagina with pellets of cotton secured by thread and moistened with a solution of alum. The inconvenience experienced from this plug will be more than counterbalanced by the saving of blood.

Prof. Byford says (1) that this form of tampon has the additional advantage of being antiseptic. He has allowed it to remain for three days, and upon removing it satisfied himself that there was no decomposition of the blood or vaginal secretions. When the tampon is removed it will not be found difficult to wash out all the granular clots caused by its presence. It may be repeated as often as necessary, but usually, if allowed to remain forty-eight hours, the hemorrhage will not return. It may be said that for small losses this is unnecessary, but is convenient and harmless, and will answer the purpose. Dr. Winckel recommends that the tampon be made of salicylated cotton or borated lint.

A sponge tent introduced into the cervix will not only serve as a tampon to arrest the hemorrhage, but will also stimulate the uterine fibres to contraction, and it is also claimed that by virtue

1) Pepper's System of Medicine, Vol. IV, p. 238.

of the pressure created by the tent the vitality of the tumor is destroyed, its development arrested, and absorption brought about.

In large tumors it is frequently necessary to relieve the pelvic viscera of their weight. The tumor should be elevated by placing the patient in the knee-elbow position and pushing the growth upward, after which it may be sustained by the use of a Hodge pessary, or sometimes by an abdominal bandage, which is better, if it can be made to answer the purpose. Sometimes the tumor is held down by peritonic adhesions and cannot be raised out of the pelvis.

SURGICAL TREATMENT.—Should the measures already considered fail to bring about improvement, it may prove necessary to resort to a surgical operation for the removal of the tumor. Yet it should be borne in mind that but comparatively few cases, not including submucous, have ever been cured by operative measures, and resort should not be had to these means unless the growth is either so located as to render its removal practicable and safe, or else it is threatening the patient's life. In case an operation is decided upon it should be the surgeon's object to adopt such a method as most nearly corresponds to those processes which nature has already adopted, or would most likely adopt, to accomplish a cure, according to the location and character of the growth.

The surgical treatment of uterine tumors consists in their removal through the cervix and vagina, or through the abdominal walls. The first method is applicable in submucous growths, and the latter in subperitoneal. The interstitial variety have been removed in both ways, either by enucleation from within, or by laparotomy, the entire uterus with its new formations being removed.

Removal through the vagina.—This may be accomplished either by excision, ecrasement, galvano-cautery wire, torsion, or enucleation. Whatever method is adopted the first step is to dilate the cervix with tents or dilators, or, if necessary, to divide it by making a bi-lateral incision with the scissors up to the vaginal junction, the os internum being divided with a tenotomy knife. Sometimes, this having been done, hemorrhage from the tumor ceases, and there is no occasion to carry the operation farther, or, the uterus may already be making efforts to expel the tumor, which is now more readily accomplished.

EXCISION.—In case the growth is found to be a small submucous fibroid it may be removed by the knife or by long handled scissors curved on the flat; or, if attached too high up to be reached in this manner, Aveling's polypotome (Fig. 171) may be required. If attached by a broad base, or if the pedicle cannot be reached, it may be necessary to cut the growth away in pieces.

ECRASEMENT.—This may be accomplished by Chassaignac's chain ecraseur (Fig. 172), but I prefer the wire ecraseur, as it is

more easily managed and is not so injurious to the mucous membrane. In case the pedicle is thick and strong the chain ecraseur will be required. Ecrasement is safer than the knife, as it diminishes the liability to hemorrhage, and its use is said to be less often followed by inflammation.

GALVANO-CAUTERY.—In most cases where ecrasement is possible the galvano-cautery wire will answer a better purpose. It is

FIG. 171.—Aveling's Polypotome.



FIG. 172.—Chassaignac's Ecraseur.

placed in position cold, then tightened sufficiently to slightly constrict the pedicle, and the current passed. The wire is then gradually tightened so as to burn through the tissues.

TORSION.—In pediculated submucous fibroids I prefer torsion, or avulsion, to any of the methods previously mentioned. I consider it more simple, more expeditious and much safer in cases in which it is applicable. It is never followed by hemorrhage and there is much less danger of septicæmia, as no portion of the

tumor is left to slough. To operate by this method the tumor is seized as near its center as possible with a volsellum. It is then slowly and carefully twisted, and at the same time a slight but

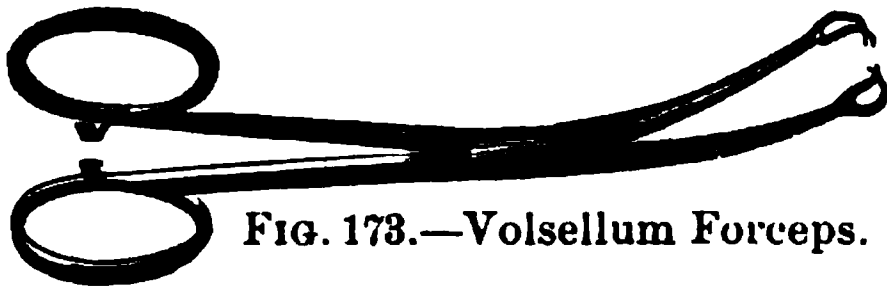


FIG. 173.—Volsellum Forceps.

firm traction is made, which can be gently increased in force as the twisting progresses.

ENUCLEATION.—This method is applicable only to cases of sessile submucous growths, or to such interstitial growths as lie near the endometrium. It is at best a barbarous and dangerous proceeding, and should never be resorted to except as a last resource in cases where less hazardous methods have failed to accomplish the purpose, and the severity of the symptoms justifies a dangerous operation.

The cervix having been dilated, the uterus is drawn down near the vulva with a volsellum, which is then firmly held by an assistant. It is sometimes only necessary to depress the uterus by firm pressure upon the abdomen, or both methods can be adopted at the same time. The operator then makes an incision about two inches in length across the dependent part of the tumor, with the scissors or a probe-pointed knife. This incision should be nearly a half-inch in depth, unless it is evident that the capsule is thin. Another incision is then made from the first incision, upward as high as the knife or scissors can be guarded with the finger. The fingers should then be inserted between the capsule and the tumor, and the former separated from the tumor as far as possible. When the fingers have accomplished all within their power the enucleation is finished by means of an enucleator. The simplest enucleator is that devised by Emmett (Fig. 174), which consists of a steel

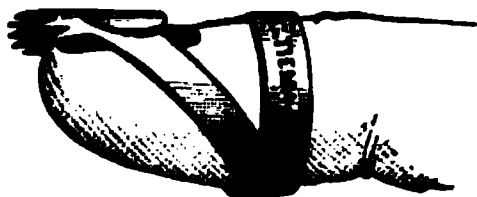


FIG. 174.—Emmett's Enucleator.

instrument terminating in a serrated edge, which is to be put over the extremity of the index finger to take the place of the fingernail in separating tissues. The finger is kept from slipping forward by the little hood just behind the saw catching over the nail. The extremity of the finger in front is left uncovered, so that the sense of touch is not interfered with, and the serrated tip can be

directed with as much accuracy as if the finger-nail were used. This instrument, however, is not sufficient in some cases, where it may become necessary to use the spoon-saw devised by Thomas (Fig. 175). This consists of an elongated spoon with a serrated



FIG. 175.—Thomas' Spoon Saw.

edge. The tumor having been loosened, it is well seized with a strong pair of volsellum forceps, and attempts made to drag it out. If detachment is not complete, the efforts at separation should be renewed, after which firm traction should be made with slight efforts at torsion. After the tumor has been removed the uterus usually contracts and prevents hemorrhage, but for fear it may not do so, the operator should be provided with plenty of cotton saturated with sub-sulphate of iron, with which to plug the uterine cavity if necessary. Sometimes after the tumor has been successfully separated from its bed, it is found difficult to extract it on account of size. In such cases it may be necessary to still further enlarge the internal os, which may also be the case where the tumor has been separated from the uterus by the methods previously mentioned. In the case of large tumors it may be required to use obstetric forceps for their extraction, or they may be divided with the knife or scissors, and removed piecemeal.

Removal through the abdominal walls, Laparotomy. Gastrotomy.—Subperitoneal tumors, and interstitial tumors lying in the outer uterine tissues, can be removed only through the abdominal walls. Fortunately this class of growths gives rise usually to so little disturbance that it is not often necessary to resort to so formidable an operation for their removal, yet there are cases where the life of the patient is threatened, and in such laparotomy is justifiable. Indeed this operation is now coming to be considered but little graver in its character than ovariectomy, and is much more frequently resorted to than formerly. The first steps of the operation are identical with those of ovariectomy. The tumor having been reached, if it is fibrocystic, the fluid contents are evacuated as in ovariectomy.

Subperitoneal tumors with a pedicle or a narrow base may be removed, leaving the uterus intact. If the pedicle is not thicker than the thumb it should be perforated like an ovarian pedicle, tied with a double silk ligature, and then cut, leaving a sufficiently long stump, which is dropped back into the peritoneal cavity.

Should the tumor be attached by a base too wide for ligature, and requiring more or less enucleation, the treatment of the point

of implantation is important. According to Kaltenbach, (1) "We should then use elastic partial ligatures, or temporarily constrict the insertion of the tumor with a rubber tube, excise the tumor in a wedge-shape, and sew up the funnel-shaped wound. But as sutures, which do not encircle transversely the vessels emptying into the wound surface, are insufficient for complete hæmastasis, we are generally compelled to ligate separately the vessels visible in the wound or to ligate the tissues. Hofmeier also calls attention to the unusual difficulty of completely checking, by sutures, the hemorrhage from the surface of amputation in the uterus, and recommends that a few sutures be applied obliquely to the line of the wound, and that they be tied very firmly."

Should the tumor prove to be interstitial, or subperitoneal with a very broad base, it will be necessary to extirpate the whole or a portion of the uterus with the new formations, including also the ovaries in case the patient has not passed the menopause, otherwise abdominal pregnancy might take place, or a fatal hæmatocele occur. Here the uterine stump constitutes the pedicle, which is usually treated by the extra-peritoneal method. Thomas recommends searing the stump with the actual cautery without any ligature, using the clamp to arrest hemorrhage during the amputation of the uterus, and while the pedicle is being seared. The clamp is in two separate portions; the one half is placed below the neck of the tumor or uterus, and the other is then adapted to it and screwed down. To prevent retraction of the pedicle, before cauterization, it is transfixed above the clamp with long wire needles. After cauterization the clamp is loosened, but left *in situ* for fourteen days, so as to be screwed up should hemorrhage occur.

Hegar's extra-peritoneal method has afforded the best results, and is undoubtedly the most satisfactory of all the methods now in use. It consists in "constriction of the uterine stump with elastic ligatures, exact closure of the abdominal cavity by stitching the peritoneum round the stump, and antiseptic treatment of the latter with the cautery and chloride of zinc." This method is fully described by Kaltenbach (2). The condition and relation of the ovaries and bladder having been ascertained, the cervix is encircled by an elastic ligature, which prevents any further supply of blood to the uterus. If, on account of the large circumference of the cervix, or for any other reason, the elastic ligature is deemed insufficient, it may be replaced by two partial ligatures of a somewhat less calibre. Kaltenbach's larding pin is used to carry through the stump a double ligature, which is then divided and tied around

1) Handbook of General and Operative Gynecology, Vol. II, W. Wood & Co., p. 57.

2) Op. Cit., p. 60.

each half. The uterus is then amputated from one and one-half to two inches above the ligatures. The next step consists in the accurate stitching of the peritoneum about the stump. A silk thread is passed into the peritoneum about one-half an inch below the posterior surface of the stump behind the elastic ligatures, and then brought out at a corresponding part of the opposite edge of the peritoneum. On tying the thread the parietal peritoneum is closely applied to the serous covering of the stump. The peritoneum is stitched in the same way on the anterior, and, if necessary, on the lateral surfaces of the stump. Above the stump (which is covered with peritoneum), and in the direction toward the umbilicus, are inserted three or four sutures, which include the peritoneum alone; then the abdominal wound is closed in the ordinary manner by alternate deep and superficial sutures.

The projecting end of the stump is thoroughly cauterized: the raw surfaces round it are painted with 3-10 per cent. solution of chloride of zinc, and cotton wadding, which has been soaked in a two per cent. solution of the chloride and then thoroughly dried, is packed around the stump. Finally, the end of the stump alone is touched with a 100 per cent. solution. The whole is covered with protective silk and carbolyzed wool, and the antiseptic dressing laid on in such a manner that the stump and vicinity may be inspected at any time, without disturbing the patient, by merely throwing back the lower border of the bandage.

The antiseptic dressing about the stump is changed frequently according to the amount of discharge, and the pedicle is gradually pared away from day to day with scissors to decrease its size, and to prevent pus from burrowing, and the elastic ligature is cut off about the tenth day.

The complications mostly to be feared are: (1) Primary or secondary shock or collapse; (2) hemorrhage; (3) peritonitis; (4) septicæmia. Efforts should be made to avert these accidents in accordance with rules elsewhere considered, or, having already occurred, they should be treated in the usual manner.

CHAPTER XXX.

TREATMENT OF FIBROID TUMORS BY ELECTRICITY.

For several years past electricity has been used in the treatment of fibroid tumors with comparatively negative results.

Kimball and Cutter apply it in the following manner: The two electrodes, needles about eight inches long, are inserted into the tumor, and the current allowed to flow for about fifteen minutes. An anæsthetic is unnecessary. The battery consists of eight zinc-carbon elements, from six to ten inches long. The operation, repeated from one to nineteen times, is said to have stopped the growth in twenty-six cases, but was without effect in ten; the tumor was reduced in twenty-three, in thirteen not reduced. Two cases terminated fatally from peritonitis, and the tumor is said to have completely disappeared in three instances.

Beard and Rockwell, and others, have adopted about the same method of treatment with similar results. I have also employed the constant current in several cases with the apparent effect in most instances of holding the growth in check, but nothing more. This having been the usual experience of gynecologists, it is not surprising that the method of treatment has received so little support from the profession, its practice being confined almost exclusively to enthusiastic specialists.

This subject has recently been more favorably brought to the attention of the profession by a paper by Dr. Apostoli, read at the meeting of the British Medical Association at Dublin, in August, 1887.

Dr. Apostoli defines his treatment as "a galvano-chemical cauterization of the uterus, vaginal, intra-uterine or parenchymatous, and always monopolar."

It is conducted as follows: "The patient being in the lithotomy position, a piece of good plastic clay, about ten inches by five, is then placed upon the abdominal parietes, and in this is embedded a flat metal plate, about five inches by three, to which metal plate one of the ends from the battery is attached. A platinum sound, sharp-pointed, is then introduced into the uterus per vaginam and made to penetrate the tumor to a slight depth. The current can now be passed between the metal plate via the clay on the body, and the platinum sound or needle in the uterus. The strength of

the current is accurately gauged by an electrometer, which measures up to 250 milliamperes."

In the paper above referred to, Dr. Apostoli elucidates his plan of treatment and makes so plain his claims for its superiority over all other methods that I shall quote his own language, it being so concise that any attempt to alter it or to give a synopsis would fail to give the student a proper understanding of this recent and most promising addition to the therapeutic literature of fibroid tumors.

Dr. Apostoli points out a very evident fact, "that his predecessors in the electrical cure of fibromes have employed the current in a vague and uncertain manner, without dosage by means of a galvanometer, in insufficient amount, and often in a dangerous manner, the galvano-puncture being made above the pubes and through the abdominal integument." He then continues:

"I have supplanted the old way of operating by a new method, which is:

"1. *Precise*, by the introduction of new galvanometers of intensity—exact counters and measures of the electric current. It is in this way only that we can estimate the value of the fluid passed and utilized through the uterine tissues.

"2. *Energetic*, by an absolutely novel service of high intensities of current, which I have progressively carried, according to the necessities of my cases, from 50 to 150 and 250 milliamperes.

"3. *Tolerable*, in spite of the enormity of these doses, in consequence of the introduction of a new form of electrode, the wetted clay, which renders the cutaneous pole innocuous and permits us to transmit through it easily and without injury a current of signal medical intensity.

"4. *Better localized*, by a direct application of the active pole, by way of the vagina, to the uterus, either in its cavity, or in the substance of the fibroid deposit.

"5. *Thoroughly under control*, by the exclusive choice of the unipolar method. In fact, I apply to the diseased uterus a continuous galvanic current of an intensity and duration sufficient to produce the therapeutic effect required. Now this application, which is generally inaccurately described as electrolytic, ought to be defined as a galvano-chemical cauterization, that is to say, a cauterization purely chemical. In the course of this current through the tissues there are two successive and distinctive effects developed: (a) *The tangible* effect at the points of entry and exit of the current, which according to the dose and duration, will be a chemical cauterization more or less severe (but not thermic), variable in conformity with the pole, and different in its character as the positive pole and the negative pole. This polar action, at the will

of the operator, may be either monopolar or bipolar. (b) The effect resulting from the circulation of the current from one pole to the other, which is therefore called interpolar action. This action follows every electrical application and sets up a subsequent process of disintegration, proportionately wide and lasting, of the morbid products through which it is made to pass.

“In serving myself to the utmost of the polar and interpolar effects of the electric current for the treatment of fibromes, I adopt always a galvano-caustic, intra-uterine and monopolar. I thus only use directly one active pole, closing the circuit outside the abdomen by a second pole, made as nearly as possible inert. At the same time, I reckon upon the interpolar effects of the current, as it necessarily finds its way through the entire uterine substance, from the internal pole to the external or cutaneous pole. This, as I have explained elsewhere, is the principal reason why I do not place the two poles in the vagina, and why I advocate the method known as uterine monopolar.

“6. *More scientifically exact*; from the due appreciation of the topical effects of the two poles, and the precise chemical and anatomical indications peculiar to each of them.

“I have been able to demonstrate, in the clearest manner, that we have in our hands a double-edged agent, that we can make use of it at discretion, to afford its local effects quite different. On the one side is an hæmastatic, more or less rapid in its action, and either direct and immediate, or secondary and remote. I allude to the positive pole, with which we can arrest hemorrhage, either instantly, if the cavity of the uterus be of normal dimensions, if the action be relatively intense, and if the hemorrhage be not excessive; or more deliberately and gradually, after several successive operations, by the formation of contractile cicatrices. The various graduations of the narrowing of the uterine canal are the plain evidence of this secondary and prolonged effect of positive cauterization.

“The positive pole will therefore be the ‘*medicament par excellence*’ in cases of bleeding or hemorrhagic fibromes.

“On the other hand, with the negative pole we obtain a state of temporary congestion, without direct hæmastatic effect. The interstitial circulation of the uterus, thus momentarily stimulated, will be hurried on, and a regression of the non-hemorrhagic fibromes is the consequence, either of this state of congestion, or of the supplementary artificial and salutary hemorrhages which take place. The negative pole will therefore be found to render invaluable benefit (though with the positive pole it is possible to arrive at the same point by a way more indirect and tedious), in those cases of fibroids accompanied with amenorrhea and dysmenorrhea, which

are only too often the despair both of patients and doctors without such means at command.

“Looking therefore at the difficulties and dangers of abdominal surgery, and at the avowed impotency of the greater part of medication in cases of fibromes, I do not hesitate to assert for my method of treating them a precedence on the following grounds:

1. “It is easy of application; since it only requires an elementary acquaintance with the principles and practice of electrotherapeutics; it being, however, unconditionally understood that a profound knowledge of gynecological science must be the indispensable prelude to any attempts.

2. “It is simple; for it is ordinarily nothing more than a skillful, uterine, therapeutical soundage. This is only what may be expected of every surgeon provided with a good galvanometer of intensity, some sort of battery capable of yielding an adequate current of electricity, an inoffensive cutaneous electrode in wet potter’s earth, an inattackable intra-uterine electrode in platinum, and a steel trocar for the galvano-punctures.

3. “The current is mathematically dosable; so that every operator can carry on the treatment under the same conditions, and adjust the force of his remedy to the nature of the effects he has to obtain.

4. “The seat of operation is optional; for the surgeon has the power of limiting and defining the point of entrance of the current, making it either the mucous membrane or the tissue of the organ.

5. “It is of easy control; and only utilizes an amount of force, which should cause neither shock nor suffering, and ought never to be put to use but in progressive and adjusted doses.

6. “It is antiseptic in itself, by virtue of the high cauterization of the active pole.

7. “It is for the most part easily supported; anæsthetics being required only for certain cases of galvano-puncture.

8. “It does not impose upon the patient any forced seclusion; and mostly admits of their continuing the usual habits of life, and even of doing hard work in the intervals between the operations.

9. “But over and above all these considerations, there is one dominant point to be advanced, which alone is of weight enough to turn the scale in favor of the electrical treatment. The simple chemical cauterization, for which you may find the equivalent in the laboratory of the chemist, or in the actual cautery, is not the only matter we have to take account of. This chemical cauterization—so-called polar—is only the first part of the therapeutical scene which gradually unfolds itself.

“The electrical current—the power we wield, and the accompaniment of every vital manifestation, in its course through the tissues acts prolongedly and profoundly on every molecule, and thus causes ulterior changes in the tumor structure, which may well astonish both by their extent, safety, and certainty.” Dr. Apostoli then mentions the difficult and dangerous character of the operation of galvanic-puncture in incautious hands, and gives the following summary of directions and precautions, which he says should be rigidly observed :

1. “Absolute and regular antiseptic irrigation of the vagina, before and after each operation.

2. “Use as the puncturing instrument a small steel trocar or needle, and let the punctures be shallow, that is, not deeper than from one to two centimetres.

3. “Make the punctures on the most prominent part of the fibroid ; whenever possible, in the posterior cul-de-sac.

4. “Make the punctures without speculum. Slide the trocar through the celluloid sheath which protects the vagina, after having examined and chosen by touch the point where the puncture is to be made.

5. “Take the precaution of ascertaining the seat of any pulsation, so as to avoid wounding an important vessel.

6. “In case of any unusual hemorrhage, immediately dilate the vagina with an expanding speculum, and if necessary put on pressure forceps to the bleeding point.”

The anatomical and clinical results to be anticipated are as follows :

(A) “As regards the material changes, we may affirm that every fibroid tumor submitted to this treatment, sometimes after so short a time as one month, but certainly when the treatment is fully carried out, will undergo a manifest reduction appreciable by the touch, and demonstrable by internal measurement. The further diminution of the tumor which continues for some months, varying in amount from a fifth to one-half of the original volume, is generally associated with a coincident and equal accumulation of subcutaneous adipose tissue on the abdominal walls.

“The regression of the tumor is not only apparent during the time of active treatment, but goes on continuously after it has been suspended, and is the persistent proof of the enduring influence of the electrical operations.

“The liberation of the tumor from its local attachments takes place simultaneously with its decrease of bulk. The tumor, which at the commencement of the treatment was immovable, can progressively be made more and more to change its position, as the absorption of the enveloping tissues deposited around it advances.

“Another phenomenon is observed in connection with the regression of the tumor. It not only contracts on itself, but it shows a tendency to separate itself from the uterus, to become more distinctly subperitoneal, to detach its mass as it were from its setting in the uterine wall, and to remodel itself into a pedunculated form.

(B) “*Clinically*, the results are less striking. Perhaps they are even more so as they are not only matter of proof by the examination of the surgeon, but the patient herself is the living exhibition of them. We may generalize the extent and importance of these results by saying, that ninety-five times out of a hundred they comprise the suppression of all the miseries constituting the fibroidal symptomatology, which may be thus categorically enumerated—hemorrhages, the troubles of menstruation, dysmenorrhea, amenorrhea, nervous disturbances, the direct pains in the growth itself, and from mechanical pressure, and the harassing series of reflex actions.

“In a word, the assertion may be safely advanced that, though our therapeutical resources carry us only so far as the sensible reduction of fibroid tumors, and not to their total absorption, we may, with regard to the symptoms, certainly anticipate their complete removal, and the establishment of a state of health equivalent to a true resurrection. I am justified in saying that the greater part of women who have persisted in the necessary treatment, not only were cured but remain well.

“I use the expression, the greater part, because there is no such thing as human infallibility, especially in medicine. I acknowledge having been sometimes unsuccessful, and so instructive are my failures, that I shall recount them at length in a work now preparing. It will be seen that they were cases in which there was no possibility of satisfactory treatment, owing to an apparently absolute intolerance of high intensities of current. I now see that I was wrong in retreating before this supposed intolerance. Among them were three cases of fibrome with ascites, and I regret now that, with the aid of anæsthetics, I did not persist in going to the limit of my power. I have also met with the same intolerance in some hysterical subjects, in case of very irritable uterus, and in others of peri-uterine and intestinal phlegmasia. Now, with my present experience, I should not hesitate to operate to the fullest extent with the patient under chloroform. There remains yet the obscure question as to the cause of cystic fibromes, and tumors with a tendency to malignant degeneration, where there is often an accompanying fearful and irrepressible hy-drorrhea. I have recorded three such instances, and in them intra-uterine galvano-cauterization generally proves useless. Something

more is demanded, and we must seek in galvano-punctures means of denutritive action more powerful and more efficacious.

“Finally, I may lay down the following proposition. No operator should admit the failure of intra-uterine galvano-cauterization before having had recourse to the galvano-punctures, which he must enforce either with or without anæsthetics.”

Dr. Apostoli confesses to having excited “or aggravated in the course of five years, ten peri-uterine phlegmonous inflammations,” but he says that “these must be attributed to blunders in carrying out the treatment.”

“These errors of practice happened during the early days of my work, and were either (*a*) a negligence of antiseptic measures, which were either omitted altogether or done imperfectly ; or (*b*) the too violent, or too intense, use of the negative pole, in cases of subacute peri-uterine inflammations.

“The fact is, that the negative pole, having a strong power of producing congestion, is a dangerous weapon, which at the beginning of any treatment must be brought to bear with great prudence and reserve, if one would avoid overshooting the mark for which it is intended. To lay before you the facts of these accidents will serve the double purpose of warning you of what may befall you, and of preventing you from falling into similar errors. My caution is, that whenever the negative pole is put to use, and there is any trace of peri-uterine inflammation present, you must not only redouble your antiseptic heedfulness, but your operative proceedings must be carried on with deliberate carefulness. You must feel your way, testing the susceptibility you have to work upon by two or three preliminary operations, in which you give doses so feeble that they only serve to enlighten you, and to habituate the patient, so as to lead on safely to the use of higher intensities.

“But when I tell you that this operative gynecology, as I have to practice it, is carried on in such exceptional circumstances that no one else has ventured to encounter them, and upon a class of women who are obliged to walk home shortly after they get up from the couch, who seldom take the necessary rest in bed, who are in no way under my surveillance, and whose poverty forces them in some fashion to get through all the ordinary duties of life, you will be curious to know, and you will ask of me, what is the explanation of the illusive mystery. All that I can say is—it appears to me that the intra-uterine current, at the high proportions I trust to, seems to have in itself some special antiseptic and atrophic property.

“Among the patients who had not the will to let me finish what I had begun, and whose impatience led them voluntarily to seek the removal of the tumors by excision, seven put themselves into

the hands of six of our most eminent surgeons, and not one of the seven recovered from the operation. Commentary on this would be superfluous."

When we compare these results with those of modern surgery under the most favorable circumstances, we cannot resist the conclusion that Dr. Apostoli's method promises much in the treatment of fibroid tumors, and deserves careful investigation and trial.

Dr. Stevenson, of St. Bartholomew's Hospital, London, in commenting on this treatment, says, (1) "The great danger inseparable from abdominal section, and the uselessness of all medical treatment for the removal of uterine fibroids, makes this mode of treatment by electrolysis the more acceptable and of greater importance. Enucleation is often impracticable, and is never unattended with danger. In electrolysis we have a means of relief, the application of which is not difficult to those who understand the medical and surgical uses of electricity. It is not unduly painful. It is, if properly applied, practically free from danger. If the tumor is not much reduced in size, the distressing symptoms are almost invariably relieved and the patient's general health improved; and she is not in a worse condition for more heroic measures, should they be deemed advisable, than before the application of electricity."

Dr. Stevenson uses electrodes which he claims possess some advantages over those used by Dr. Apostoli. "They consist of a copper wire, insulated by gum elastic, to the end of which is welded a piece of platinum of about an inch in length, and of the size of a No. 6 English catheter. The expense is very much less, on account of the smaller amount of platinum used in their composition. The flexibility is an advantage, as it enables them to be passed into the uterine cavity through the cervical canal in many cases when it would be impossible to do so with the rigid electrode used by Dr. Apostoli. When a fibroid tumor is present the uterus is often tilted in one direction or another, so that the opening and course of the cervical canal are very much displaced from their normal position. And, again, with the celluloid or vulcanite sheath used by Dr. Apostoli, it is almost impossible to shield that part of the platinum rod which is in contact with the cervical canal and os uteri. With the electrodes I use it is quite easy to get the unprotected end of the platinum well within the uterine cavity, the gum elastic part of the stem only being in the cervical canal."

1) British Medical Journal, Oct. 1887, p. 702.

CHAPTER XXXI.

MUCOUS POLYPI OF THE UTERUS

DEFINITION.—A pediculated uterine tumor covered with mucous membrane and composed of glandular and connective tissue.

PATHOLOGY.—These tumors may either consist of connective tissue in a state of hypertrophy or hypergenesis, or of Nabothian or other uterine glands in a state of dilatation. Frequently a mucous polypus presents both the dilated glands, and the hypertrophied connective tissue, and also epithelium and muscular fibre, such being designated as fibro-cellular polypi. Mucous polypi have their origin from the mucous membrane of the uterus, most

FIG. 176.—Group of mucous polypi growing in the cervix uteri.

frequently from the cervix. They usually have a flattened, pear-shaped form, and vary from the size of a pea to that of a hen's

egg, though rarely exceeding that of an almond. They are of a soft, pulpy consistence, very vascular, and of a bright red color. The pedicle is usually long and slender, the polypus sometimes hanging outside the vulva.

Where the polypus is made up of dilated glands or follicles, individual follicles may separate to form a secondary polypus on the original growth, the whole being bound together by connective tissue, and giving rise to a mass resembling more or less a bunch of grapes (Fig. 177). Such a case is reported by Thomas, (1)

FIG. 177.—Glandular polypus.

“where the growth measured in length four and one-half inches, and in its longest diameter two and seven-eighths inches. It filled the vagina completely, grew from the inner wall and lip of the cervix, caused no symptom except leucorrhea and pelvic neuralgia, and was not suspected until difficulty in sexual intercourse caused the patient to apply for examination.”

ETIOLOGY.—The chief cause of mucous polypi is chronic cervical endometritis, which causes hypertrophy of the connective tissue and swelling of the follicles, giving rise to a small elevation on the surface, the base of which becomes gradually smaller until

1) *Op. Cit.*, p. 532.

only a slender pedicle remains. Thus, according to Thomas, "any influence tending to keep up uterine congestion will predispose to hypergenesis of the elements of the mucous membrane."

SYMPTOMS.—The most important symptom is hemorrhage, sometimes occurring only as a profuse menstruation, but more often, later, as an irregular metrorrhagia of more or less violence. Should the polypus hang free in the vagina so as not to be a source of irritation in the cervix, there is no hemorrhage.

Leucorrhea is present as a result of the endometritis. Pain in the back and loins is usually more or less severe, and sometimes the polypus, obstructing the menstrual flow, gives rise to the characteristic pains of obstructive dysmenorrhea. Similar pains may also occur from the muscular efforts of the uterus to expel the polypus, which sometimes takes place.

DIAGNOSIS.—The diagnosis is easy when the polypus protrudes through the external os, but if it lies in the body of the uterus it may be necessary to dilate with tents and explore by both the sound and touch. In the former case vaginal examination will reveal a small, soft, pulpy mass lying in the os, which through the speculum will present a bright cherry-red color, contrasting with the darker red of the cervical mucous membrane which surrounds it. Mucous polypi may be readily differentiated from fibrous polypi by their soft consistence, and the fact that fibrous polypi seldom present at the external os.

PROGNOSIS.—As a rule the prognosis is favorable. Mucous polypi are usually readily removed, and at all events seldom prove dangerous, though they may give rise, through the occurrence of hemorrhage, to serious anæmia, and even fatal cases of hemorrhage have been known. They are not infrequently expelled spontaneously, but usually surgical procedures are necessary.

TREATMENT.—This consists in their removal, which can be accomplished in different ways.

If the polypus is small, the best plan is to seize it with a pair of forceps close to its insertion, and twist it off. The forceps

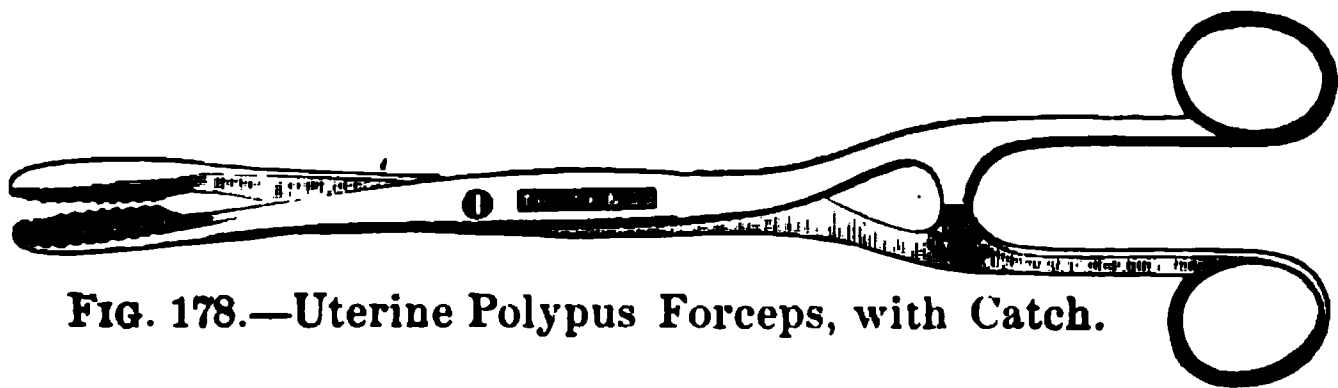


FIG. 178.—Uterine Polypus Forceps, with Catch.

should be supplied with a catch (Fig. 178), so that, while the tumor is steadily grasped by them, the operator's fingers are free to manipulate as may be necessary.

If the tumor is large, it is better usually to cut the pedicle with a pair of scissors, the tumor having been grasped and pulled down as far as possible with the volsellum. Should polypi exist in the body of the uterus, the treatment is the same, except that it becomes necessary to dilate the cervix before they can be reached. This should never be done so long as the symptoms are not sufficiently grave to make it really necessary. If a number of small polypi are present in the body of the uterus, they may be removed with the curette, 'Thomas' dull wire curette being the best instrument for this purpose. After the removal of polypi no form of local treatment is required, the application of carbolic acid, iodine, etc., being entirely unnecessary; neither is an anæsthetic required for the operation.

CHAPTER XXXII.

SARCOMA OF THE UTERUS.

DEFINITION.—A malignant growth, distinct from carcinoma, originating in the connective tissue of the uterus, and presenting clinical and histological features common to both fibroma and carcinoma. According to Virchow they do not represent perfect tissue, but display only embryonic or rudimentary development. As carcinoma is traced back to epithelium, and fibroma to muscular tissue, so sarcoma is traced back to connective tissue.

PATHOLOGY.—There is much confusion among pathologists as to the real nature of sarcoma, and the relations which exist between sarcoma and carcinoma on the one hand, and sarcoma and fibroma on the other. Sarcoma is not a result of a transition of fibroma into a malignant form of disease, nor is it an initial growth of carcinoma, though, as to malignancy, apparently holding a position midway between the two, forming, as one writer says, “a connective link.”

Schröder distinguishes two varieties of sarcoma, both pathologically and clinically.

1. Diffuse sarcoma of the mucous membrane ; and
2. Circumscribed fibrous sarcoma.

In the first variety the disease arises from the submucous connective tissue of the cavity of the uterus, or only from the cervical mucous membrane.

“Under the influence of a new growth of small, round, rarely spindle-shaped cells, a soft, flabby, or villous tumor develops, which grows inward into the cavity of the uterus. Thence it may be expelled into the cervix or vagina by the contractions of the uterus. It generally ulcerates only at a late stage, and perhaps only in consequence of the pressure exerted by the uterine walls. Sarcoma of the mucous membrane may, however, destroy the wall of the uterus secondarily by further proliferation and by destructive pressure upon it, or even by direct infection.”

This form of sarcoma is more closely related to carcinoma for the reason that there is frequently epithelial-cell proliferation associated with it. Klebs proposed to call such cases *carcinosarcomata*.

The circumscribed fibro-sarcoma arises from the muscular coat of the body of the uterus, only occasionally from the cervix.

According to Winckel they most commonly originate in an existing myoma, whether the latter be interstitial or submucous, but Schröder says that fibro-sarcoma form round or cylindrical tumors of considerable size "which are quite constantly seated in the submucous tissue." The tumors are hard, and feel like knots in the muscular wall of the uterus, unless, as is sometimes the case, they project as polypi into the uterine cavity. They thus have much the appearance of fibroids, but have no capsule. According to Schröder, (1) microscopical examination reveals "the tumor either composed largely of the normal constituents of the fibro-myoma, with here and there, scattered throughout the mass, centres of cell-growth (round, or, in this form, very frequently spindle-shaped cells); or these centres of cell-growth constitute the entire mass of the tumor, being separated from each other by only scanty trabeculæ of connective tissue.

"The tumors have no tendency to break down, although, like the fibrous polypi, they may be spontaneously expelled. Consequently they sometimes attain a very considerable size. In a case which is still under my observation, where the diagnosis is scarcely open to question, although not yet confirmed by microscopic examination, the tumor reaches from the entrance of the vagina to above the navel. These tumors may extend by continuity to the surrounding tissues, and also, by metastasis, involve the lymphatic glands or other organs."

ETIOLOGY.—The causes of sarcoma are entirely unknown. The disease occurs at all periods in life after puberty, and under all circumstances and conditions, and is as frequent in nulliparæ as in multiparæ.

SYMPTOMS.—The symptoms of sarcoma are hemorrhage; watery, non-offensive discharge, becoming more or less offensive as the disease progresses; absence of pain in the early stages, but labor-like pains later when the uterus endeavors to expel the new growth; pressure on the rectum and bladder; cachexia.

Physical examination reveals practically the same signs as are found with fibroids. In the diffuse variety, if the tumor can be touched, it will be found soft, spongy and friable. In fibro-sarcoma it is more dense and hard, like fibroma. The uterus is large and irregular in shape, even more so than in the case of fibroids, and the sound shows increased depth.

DIAGNOSIS.—If the above signs are present in a tumor of slow growth, it may be safely presumed that it is sarcomatous, but the microscope is necessary to fully differentiate from either fibroma or carcinoma. Hart and Barbour say that this is not always decis-

1) Ziemssen, Vol. X, p. 80.

ive, "as the cells found in sarcoma sometimes closely resemble epithelial cells."

PROGNOSIS.—The prognosis is unfavorable. While the development is much slower than in carcinoma, and there is less pain, and the offensive discharges are less than in carcinoma, yet sooner or later the patient will succumb in spite of operative interference. After removal the tumor returns, usually within a few months, and develops much more rapidly than did the first growth. The patient generally dies from spread of the disease to neighboring viscera, with consequent disturbances of nutrition, or from septicæmia. To what extent the disease may be held in check or ameliorated by the use of homeopathic remedies has not been determined. It is claimed that under homeopathic treatment sarcoma is at least less rapidly fatal, but this may arise from the fact that under such circumstances the tumor is less often interfered with by operative measures.

Thomas says, (1) "The microscope, to a certain extent, aids us in predicting the probable rapidity of the affection. The more nearly it approaches a hard growth, the preponderating element of which is fibrous tissue, the slower will be its course; the more it partakes of a soft character and shows itself rich in cellular elements, the more rapid will be its progress in molecular death. Again, the small-celled varieties show a more marked tendency to rapidity of production than those which are characterized by large cells."

TREATMENT.—The rule is to remove such growths as soon as their malignancy is suspected, but when we consider what has already been said concerning the prognosis of sarcoma I think such a rule is too sweeping. The question of operative interference must depend upon many circumstances which cannot be here enumerated. The patient should be plainly informed as to the probable amount of benefit she will derive from surgical interference, and her wishes should decide the question. Removal can be secured by the galvano-cautery, ecrasement, excision, or the curette, as has already been detailed under the head of fibroid tumors, and will be further considered under carcinoma.

1) *Op. Cit.*, p. 543.

CHAPTER XXXIII.

CARCINOMA OF THE UTERUS.

DEFINITION.—Cancer of the uterus does not differ essentially from the same disease when located elsewhere, and does not admit of a separate or distinct definition. According to Waldeyer, (1) cancer is “an atypical epithelial neoplasm.”

Ziegler (2) defines carcinoma as “a growth characterized by epithelial multiplication, and not agreeing with any normal glandular type.”

VARIETIES.—There are three forms of carcinoma affecting the uterus: (1) Fibrous or scirrhus, hard cancer; (2) medullary or encephaloid, or soft cancer; (3) epithelioma, or cancroid.

Scirrhus of the uterus is of extremely rare occurrence, so rare, indeed, that it is not described by some authorities. The medullary is the most common form, epithelioma occurring next in frequency. Either one of these forms may affect either the cervix or the body of the uterus, though cancer of the body of the uterus is of rare occurrence; Schröder claims that less than two per cent. of cases are situated in the body. For this reason, and because the disease when located in the body of the uterus differs only in a few comparatively unessential points from cancer of the cervix, I shall not follow the customary plan of describing these as two general varieties, but will notice the differences mentioned in their proper place.

PATHOLOGY.—There is much less difference in the morbid anatomy and the pathology of the different varieties of carcinoma than is usually supposed. Ziegler (3) describes them as follows, though not in the order here given:

(1) *Scirrhus*, or hard cancer. In this form the cell groups are small and scanty, and the stroma coarse and dense. The tumor feels firm or even hard, and looks very much like a dense fibroma.

The characteristic hardness of scirrhus is found in spots, where the fibrous stroma is not so much alveolated as interspersed with small fusi-form cell-nests.

The cancer-cells often perish by fatty degeneration, and are

1) Billroth's Surgical Pathology, American edition.

2) Text-Book of Pathological Anatomy, etc., W. Wood & Co., 1887, p. 237.

3) Op. Cit.

then absorbed. The coarse fibrous ströma is left, looking like a deposit of firm scar-tissue.

(2) *Medullary* or *Encephaloid*.—When the cells are very abundant and the stroma delicate and scanty, the consistence of the tumor may become remarkably soft and semi-fluid. They resemble very much the softer adenomata and sarcomata. An abundant milky cancer-juice may be expressed from the cut surface; it contains numerous cells and free nuclei, with fatty detritus and free oil-globules.

(3) *Epithelioma*.—Ziegler distinguishes the squamous and cylindrical varieties of epithelial cancer. Of the squamous variety he says, “the chief representative of this class is epithelioma or cutaneous cancröid. This gives rise to watery and nodular tumors, or to diffuse thickenings of the skin. It is characterized by the occurrence of its large epithelial nests, made up of large multiform squamous cells. Ulcers are very often formed by the breaking down of the new tissue.

“If the section of an epithelioma be scraped, a gritty mass is obtained consisting mainly of nests and single cells. The nests often take the form of globes in which the cells are arranged concentrically like the coats of an onion. These at times become horny, forming what are called epithelial pearls. Epitheliomata in which these pearls are a distinct feature have been called horny or corneous cancröids. The tumor-cells of epithelioma are descendants of the superficial epidermis, and also of the epithelia of the hair-follicles and sebaceous glands.”

The cylindrical variety has its seat in the mucous membrane. It forms soft, nodulated tumors which start in the columnar epithelium of the glands.

In consequence of active multiplication among the epithelial cells the glands become distended into more or less globular nests. By mutual compression the cells assume various forms, retaining their columnar character only at the periphery. Sometimes an unoccupied space or lumen remains at the centre. The cell-nests having thus the appearance of gigantic gland acini. Either of these varieties may include the flat conical and the papillary forms, but the squamous variety is that usually occurring.

Hart and Barbour claim that “we have not at present a truly pathological classification of the different forms of carcinoma.” Accordingly, as a matter of clinical convenience, they use the terms true Carcinoma and Epithelioma. This is precisely what others do practically, even if, in theory, they adopt a pathological classification. By these terms nothing is implied regarding the nature or origin of the disease. The term epithelioma, as used, includes “those forms which begin more superficially, spread more slowly

CLASSIFICATION ACCORDING TO CLINICAL FEATURES.	FORMS.	ORIGIN.	POSITION.	PROGRESS.
<p>CARCINOMA</p> <p>progresses rapidly; produces metastasis, affects connective tissue rapidly.</p>		<p>{ from the cervical epithelium of constricted cervical glands (<i>Klebs</i>);</p> <p>{ from plugs of the deepest layers of squamous epithelium on the vaginal aspect of cervix (<i>Waldeyer</i>);</p> <p>{ from connective tissue cells of cervix (<i>Virchow</i>).</p>	in substance of cervix.	produces thickening, then ulceration;
	<p>{ flat (flache canceroid).</p> <p>{ papillary.</p>	<p>{ from the cubical epithelium of cervical canal (<i>Klebs</i>);</p> <p>{ from plugs of the deepest layers of squamous epithelium on vaginal aspect of cervix (<i>Waldeyer</i>).</p> <p>{ from the deepest layers of squamous epithelium on vaginal aspect of cervix (<i>Klebs and Waldeyer</i>);</p> <p>{ from connective tissue cells (<i>Ruge and Veil</i>).</p>	superficial within cervical canal.	excavates cervix;
<p>EPITHELIOMA, OR CANCROID.</p> <p>progresses slowly; does not produce metastasis; spreads by extension.</p>				spreads downward into vagina (cauliflower excrescence).
When ulceration and breaking down have been produced, these forms are no longer distinguishable.				

Carcinoma of the uterus. (Hart and Barbour, p. 480.)

and do not tend to involve the connective tissue." The origin of all the forms of cancer is a matter that is not yet settled, there being two distinct views. These are briefly shown in the accompanying table taken from Hart and Barbour. Schröder accepts the views of Waldeyer, as do most other authorities; yet the most recent investigations are those of Ruge and Veit, who claim that carcinoma is not epithelial, but that it arises, at least in the majority of cases, from the connective-tissue cells; even the papillary form, which develops the so-called cauliflower excrescence, and apparently arises from the epithelium, really springs from the connective-tissue cells. The table also gives very concisely the chief clinical, as well as the pathological features, so that further remarks on the position and progress of the various forms of carcinoma are not necessary.

As Schröder says, "the disease remains confined to the parenchyma of the cervix for but a short time," the tendency being to spread and invade the adjacent tissues and organs. First, it may encroach upon the neighboring connective tissue of the pelvis, even, at times, involving the lymphatics; second, it may advance upward, involving the body of the uterus, the process sometimes including the Fallopian tubes; third, downward, involving the vagina, though generally only its upper third. From the vagina and connective tissue the disease may spread to the bladder and rectum respectively, the former being much more common, giving rise to vesico- and recto- vaginal fistula. Sometimes the disease breaks through into both the bladder and rectum, thus forming a vast cloaca into which all three organs open.

Thus, in a great many advanced cases there may come to be one great ichorous cavity, into which the bladder and rectum open, and in which every trace of the uterus has disappeared. Those parts of the walls of this cavity which do not show evidences of carcinomatous infiltration are frequently covered with diphtheritic deposits.

Schröder (1) describes carcinoma of the body of the uterus as occurring under two different forms, either in circumscribed, roundish foci in the parenchyma of the uterus, or as a diffuse carcinomatous infiltration, which gradually involves the whole body and fundus. The round nodules of the first form are of the size of a hazelnut, a walnut, or larger; they very readily become softened, and, when broken down from necrosis, sometimes perforate into the cavity of the uterus, where they can be felt as friable masses, and are gradually cast off. Sometimes they make their way outward, instead of inward, and then the perforation is very commonly preceded by adhesions to adjacent organs, or may be

1) Op. Cit., p. 298.

shut in by pseudo-membranes. On the other hand, acute peritonitis, from perforation, often occurs with a fatal result. There may, however, be adhesions to and perforation into various parts of the intestines or into the bladder; in fact, by these excluding pseudo-membranes a completely new, sac-like space may form between the posterior wall of the pelvis and the symphysis, in which lie the broken-down masses shut out from the abdominal cavity, so that gradually almost the whole body of the uterus may be destroyed, and in its stead may be found a newly-formed cavity, with gangrenous contents.

ETIOLOGY.—While there are undoubtedly certain conditions which predispose to the development of cancer, yet the real *fons et origo* of the disease is entirely unknown.

Women are more subject to cancer than men, and in the former the uterus is the most frequent seat of the disease, cancer of the mammæ coming next in order of frequency. The disease is rare in young women, being most frequent in middle and advanced life. Probably the majority of cases occur at or soon after the menopause. The disease occurs most often in the married, and is much more frequent in the multiparæ. Many cases of epithelioma may be traced to cervical laceration. Heredity has some influence in the production of cancer of the uterus, but not to the extent previously supposed. Winckel says, (1) “English physicians have called attention to the frequency of tuberculosis in the families of women who have cancer, and my experience confirms the observation.”

Any causes tending to depreciate the general health may favor the development of the disease—grief, mental trouble, exposure, hard labor, insufficient food and vicious habits, may be enumerated in the list, and this fact is said to explain why cancer occurs more frequently among the poorer classes. The influence of traumatism in the production of cancer—when not due to parturition or abortion—is a matter of question.

Carcinoma of the body of the uterus is said to occur still later in life than that of the cervix, and is more often found in women who have not borne children.

SYMPTOMS.—The characteristic symptoms of cancer of the uterus are the same as those of cancer in other situations, viz.:—

Hæmorrhage ;
Offensive discharge ;
Pain.

Generally, also, there is a cachectic condition, and more or less secondary disturbance of the nervous and vegetative systems, showing themselves in general debility, emaciation, disturbances of the digestion, constipation, painful defecation, dysuria and

pruritus vulva, to which is sometimes added vesico- or recto- vaginal fistulæ, with their attendant evils. The cachexia referred to is characteristic of all cancerous patients, and is usually a sequel of the other symptoms. The skin acquires a dirty straw tint, and the face assumes a careworn expression—*facies carcinoma*. Dr. Byford claims that this condition is not distinguishable from the hemorrhagic anæmia occurring sometimes in persons of the same age, produced by the drain upon the blood. With this statement I do not concur, for to the practiced eye there is certainly a decided difference between the appearance of a patient suffering from ordinary anæmia, and one suffering from cancer.

Of the three characteristic symptoms first mentioned, hemorrhage is the most constant, and is usually the first noticed, though it is not present in all cases. Sometimes the hemorrhage is constant, at other times intermittent, or occurring from slight causes, a mere touch of the finger, coition, straining, coughing, or the use of the speculum exciting it. Usually the hemorrhage is greater near the menopause, and though the amount of blood lost is sometimes considerably exhausting to the patient, yet death from hemorrhage is rare. In the later stages of the disease the hemorrhage may become insignificant, or cease entirely.

As soon as ulceration has commenced we begin to have the characteristic discharge. This is thin and watery, pale, dirty looking, or tinged with blood, offensive, and sometimes corrosive in its character. As the disease advances and the deeper tissues become involved, breaking down rapidly, the discharge becomes thicker, usually more of a reddish brown or chocolate color, and the fœtor becomes more intense. The fœtor is very characteristic and is due to the ulceration or to the gangrenous shreds which are cast off from the papillomata. Sometimes a diagnosis can be made merely from the peculiarity of this odor.

Pain, although characteristic, is not always of the same character. In most cases no pain is experienced in the first stages, and for this reason the patient, and possibly the physician, is deceived as to the real character of the disease. But as the connective tissue becomes involved, or the organ becomes so enlarged as to cause pressure on the pelvic nerves, intolerable pain is experienced, of a lancinating, burning or dull gnawing character, which extends to the loins, thighs or abdomen, and is usually worse at night. In exceptional cases pain is not present through the whole course of the disease, or at least only to a limited extent.

CARCINOMA OF THE UTERINE BODY gives like characteristic symptoms. The pain comes on earlier in the disease, and is more variable in its character, sometimes appearing as a uterine colic, and occurring in paroxysms. Hemorrhage is also present early,

but partakes more of menorrhagia, on account of the involvement of the endometrium, and is more apt to occur with alarming violence. The discharge is usually profuse, watery and offensive, and sometimes entirely absent. It does not differ essentially from the discharge already described.

DIAGNOSIS.—The diagnosis of cervical carcinoma in the later stages is a comparatively easy matter, but, unfortunately, this is not the case in the first stage. Here the diagnosis is attended with difficulty, which is to be deplored, for it is only at this time that we can have much hope of effecting a permanent cure. Spiegelberg (1) calls attention to the use of sponge tents for diagnostic purposes in this stage. If the induration of the tissue be benign, the dilating influence of the tent will produce a degree of softening, while, if it be due to malignant disease, the tissue will remain unyielding and hard. Winckel opposes this conclusion. He says (2) that “In doubtful cases the results of dilatation cannot be relied upon as establishing the diagnosis, for a cancrroid of the cervix may be rapidly and easily dilated either by tents or labor pains, while the converse is often true of simple indurations of the connective tissue.”

We should remember, also, that chronic induration may have been present for years, while the mean duration of carcinoma is only about eighteen months. The hardness of induration is uniform while that of carcinoma is nodular, the mucous membrane being firmly adherent, as Waldeyer says, “as if fastened by the epithelial plugs to the subjacent tissue with little nails.” Early in carcinoma the upper part of the cervix becomes obliterated, owing to the spread of the disease to neighboring tissues, while in simple hypertrophy the cervix, though enlarged, is clearly defined.

In the most of cases, however, no opportunity for diagnosis is given until pain or hemorrhage has called the patient's attention to her condition, ulceration being frequently well advanced before a physician is consulted. At this time a vaginal examination, which must be carefully conducted on account of the danger of exciting hemorrhage, will reveal either an irregular ulcerated surface, crumbling and brittle in character, with hard edges; or, in case of papillary epithelioma, the everted lips of the cervix will spread out like a mushroom, and if the cauliflower excrescence projects from the external os it may be distinctly felt [Fig. 179]. On withdrawing the finger it is found stained with blood and retains the characteristic odor of the cancerous discharge. In the early stages of the disease, rectal examination affords the best method for ascertaining the condition of the connective tissue.

1) Arch. f. Gyn., Bd. III, p. 233.

2) Op. Cit., p. 371.

This is true, also, in the later stages if a vaginal examination causes much pain and hemorrhage, or is difficult on account of deposits within the vagina. In this way not only may the condition of the rectal mucous membrane be ascertained, but we can also establish the extent of the cancerous deposit, and the size and mobility of the uterus. Hypertrophy of the cervix leaves the uterus mobile, whereas in carcinoma it becomes fixed at an early stage of the disease. If the diagnosis is still in doubt, a small portion of the cancerous material should be removed and examined

FIG. 179.—Cauliflower excrescence growing from the cervix uteri (Sir J. Y. Simpson).

under the microscope. In this connection Thomas (1) lays down a series of propositions which are in accordance with the existing views of pathologists :—

1. There is no typical cancer cell, which, separated from its surroundings and viewed as an entity, enables a microscopist to pronounce upon a growth.

2. There are certain combinations of cells, alveoli, and stroma, which do enable a microscopist to pronounce an opinion as to the benignity or malignancy of a growth.

3. This combination consists, in general terms, in the existence of a fibrous stroma, containing ovoid alveolar spaces, filled with masses of cells with large single or multiple nuclei, and all bearing more or less closely a resemblance to epithelium."

It may be necessary to differentiate carcinoma of the cervix from some one of the following lesions :—

1) Op. Cit., p. 361.

Hypertrophy and induration of the cervix, with occluded follicles ;

Eversion and erosions of the cervix from laceration ;

Syphilitic ulceration ;

Sloughing fibrous polypus ;

Diphtheritic inflammation of the mucous membrane (Schröder) ;

Sarcoma of the uterus.

A careful examination and study of the case ought to be sufficient for differential purposes. The history of carcinoma and the physical signs already mentioned are found in no other character of lesion. Possibly the greatest danger of mistake lies in those rare cases of syphilitic ulceration where deep excavation takes place, even to the formation of a vaginal fistula, but here the history of the case should certainly remove all doubt.

The diagnosis of carcinoma of the uterine body is often very difficult, and sometimes it is made possible only by removing a portion of the diseased tissue and subjecting it to a microscopical examination. The cervix is usually normal, the uterus enlarged, usually acquiring a nodular feel, and becoming firmly fixed by adhesions to neighboring organs. The sound shows an increased depth, and its use is followed by hemorrhage.

Carcinoma of the body of the uterus may require differentiation from—

Retained products of conception ;

Sloughing submucous fibroids ;

Non-malignant fungosities in the uterus ;

Chronic corporeal endometritis.

The diagnosis of these conditions has already been considered. The presence of pain, hemorrhage and fœtor, together with an enlarged, fixed and nodular uterus, are never met with except in carcinoma. I agree with the opinion expressed by modern pathologists that the continual recurrence of hemorrhage in women who have entirely passed the menopause may be considered an almost certain evidence of the presence of uterine cancer.

PROGNOSIS.—While homeopathic remedies undoubtedly do much to palliate the disease and check its progress, yet no well authenticated cures are reported as resulting either from constitutional or surgical treatment. In the few cures that have been reported there is doubt as to the correctness of the diagnosis. Death usually takes place in about eighteen months, except where life is prolonged by treatment. The disease may run a very acute course and terminate fatally within six months, whereas, on the other hand, it has, in very exceptional cases, been known to last ten or twelve years.

As to the recurrence of the carcinoma after surgical treat-

ment, there is no doubt that the earlier the treatment is adopted, the longer will be the succeeding immunity from the disease, but in a majority of cases it will recur sooner or later and terminate fatally.

Death may finally result from exhaustion, from an irritative fever which assumes a typhoid form, from hemorrhage, or perhaps more often from septicæmia. Seyfort (1) has recently claimed that in the majority of cases death results from uræmia, due to compression of the ureters.

Peritonitis, cellulitis, phlebitis, or embolism are sometimes the immediate cause of death.

TREATMENT.—In the treatment of uterine carcinoma the following methods are to be adopted, according to the indications in each case:—(1) Hygienic; (2) Constitutional; (3) Palliative; (4) Surgical.

1. **HYGIENIC.**—In those cases coming under treatment in the earlier stages of the disease, much can be done toward maintaining the general health and holding the disease in check by an observance of proper hygienic rules. Nutritious food, plenty of fresh air and sunshine, agreeable society and cheerful surroundings are as important as in the treatment of any other constitutional disease.

2. **CONSTITUTIONAL.**—Whatever other methods of treatment may be adopted, the constitutional treatment must not be neglected. While surgical measures should not be delayed under a vain hope that internal remedies may eradicate the disease, yet there is probably no case of carcinoma, of whatever nature, but that may be aided by the persistent use of the indicated remedy. I have seen cases in which I am certain that the patient's sufferings have been greatly mitigated and life prolonged for years, simply by the use of internal remedies. After surgical treatment, also, the administration of proper remedies will, I think, postpone, or, perhaps, entirely prevent recurrence. The following remedies are those most often required, but their indications in this disease may cover so much ground, and require such careful study, that I will content myself with referring the reader to his materia medica, simply cautioning him that the remedy should be selected entirely upon the symptoms of the individual case, regardless of other considerations. A remedy that covers the case from a pathological standpoint will certainly possess the symptoms of the case, and not otherwise.

Arsenicum, Arsenic. iod., Aurum met., Calcarea carb., Carbo an., Conium, Graphites, Hydrastis, Iodium, Kreasotum, Lachesis,

1) Saxinger, Prager med. Vierteljahrsschrift, Bd. 1, S. 103.

Mercurius, Nitric ac., Phosphorus, Phytolacca, Sulphur, Silicea, Sepia, Thuja.

3. **PALLIATIVE.**—In a disease like carcinoma the adoption of palliative treatment is often a matter for grave consideration, and certainly should never be resorted to so long as there is any hope of saving or prolonging life. At least this is the rule so far as concerns the internal administration of opium, morphine, chloral, and other anodynes. Doubtless either morphine or chloral hydrate may be applied locally, either in solution or in the form of vaginal suppositories, for the purpose of allaying pain, without obtaining the injurious effects that would certainly arise from the use of these remedies internally. Ludlam recommends the local application of a mixture of chloroform, glycerine and sweet oil. He also says that “in some cases both the pain and the hemorrhage may be controlled by the local employment of Hamamelis.”

Palliative treatment also includes all necessary efforts to control hemorrhage, secure perfect cleanliness and neutralize the offensive odor.

Hot water injections are not only valuable as affording more or less relief to the pain, but they also fulfill a triple purpose by controlling hemorrhage and cleansing the parts. Hemorrhage may be checked by the application of Churchill's tincture of Iodine, or by applying pledgets of cotton soaked in a strong solution of alum, or a solution of persulphate-of-iron in glycerine. Some physicians have their patients keep ready a solution of alum to use as an injection in case hemorrhage occurs. In case of profuse hemorrhage the vagina may be carefully packed with pledgets of carbolized cotton, each pledget having a string attached to facilitate its removal.

For the purpose of disinfecting the discharges and neutralizing the offensive odor various astringents and antiseptic injections are recommended. If the discharge be profuse but not very offensive, as is the case frequently in papillary epithelioma, such astringents as sulphate of alumina or sulphate of zinc or tannin are usually employed. If the discharge is offensive, a two per cent. solution of carbolic acid is the best agent that can be used. Permanganate of potash, Chlorate of potash, Bromine, Kreasote, Iodoform, Thymol, Acetate of lead, and other agents of a similar nature are sometimes employed. Thomas fulfills all the indications for palliative treatment, relief of pain, control of hemorrhage and prevention of fœtor by the use of the following prescription:—

R.—Acid carbolic (sol. sat.), $\frac{3}{4}$ ijss.

Glycerinæ, Oj.

Aluminis sulphatis, $\frac{3}{4}$ xiv.

Morphæ sulphatis, gr. xvj.—M.

S.—Add one tablespoonful to two quarts of tepid water, and use as a vaginal injection morning and evening by Davidson's or the fountain syringe.

The external parts should be protected from the acrid discharges by introducing carbolized absorbent cotton just within the vulva to cause their absorption. The parts may also be anointed with vaseline, or with a lotion of equal parts of olive oil and lime water, applied after each vaginal injection.

4. **SURGICAL.** The surgical treatment of carcinoma of the uterus includes:—

1. Application of caustics ;
2. Scraping out diseased tissue, followed by cautery ;
3. Amputation of the cervix ;
4. Extirpation of the uterus.

1. *Application of caustics.*—This method of treatment is really palliative, as the effects are only temporary, there being only a superficial destruction of the diseased tissues, which, however, sometimes affords the patient great relief and prolongs life. Strong nitric acid or the pernitrate of mercury are the agents usually employed. The parts should be first thoroughly cleansed and dried, and the sound tissues protected from the caustic by packing the healthy parts of the vagina with cotton saturated with bi-carbonate of soda. The caustic is then applied directly to the diseased tissue on pellets of absorbent cotton. Thomas uses for this purpose the chemically pure nitric acid, which he applies in the following manner (1):—

“The cervix should be exposed by a large glass speculum, which should be pushed with some force against the vaginal junction, to prevent escape of acid into the vagina. The cervix should then be cleansed by a stream of cold water from a syringe, and thoroughly dried by dossils of lint, or bits of sponge. Then the acid should, by means of a glass pipette or rod, be thoroughly applied to the whole diseased surface. After this a stream of water should be again projected upon the cervix, and a pad of cotton saturated with glycerine made to envelop it.” Thomas says he “regards this as the best method for accomplishing partial destruction of a cervix affected by a cancer, and now resorts to it frequently in practice with excellent results.”

He endorses the statement of Dr. Churchill, who thus speaks of the use of strong nitric acid as a caustic: “I have found it to relieve pain, arrest hemorrhage, and restrain the discharges. In one case, hopeless when I first saw her, life was prolonged for three years under this treatment.”

2. *Scraping out diseased tissue, followed by cautery.*—In those cases where the disease is too far advanced for amputation of the cervix, and in carcinoma of the body of the uterus, this constitutes the most important as well as the most effective method of treatment. The operation consists in thoroughly

1) Op. Cit., p. 568.

scraping away the necrosed tissue with a curette or Simon's spoon, and the subsequent application to the entire raw surface of the actual cautery, or, as Dr. Emmett prefers, of the galvano-cautery. After the operation the whole surface is covered with a thick pad well saturated with glycerine, and this held in place by a tampon, which will also serve to control any subsequent hemorrhage that may occur. The tampon is removed on the second day, but the pad, owing to the hemorrhage which would follow its removal, is left until detached by suppuration. After suppuration has begun vaginal injections of a two per cent. solution of carbolic acid should be used every three or four hours, with the hope of establishing a healthy granulating surface.

3. *Amputation of the cervix.*—When the disease is limited to the cervix this operation is indicated, the details of which have been described in a previous chapter, and need not be repeated. It is important that the excision be made sufficiently high to cut through healthy tissue, and entirely remove the diseased parts. In amputation for carcinoma, Emmett advises the use of either the scissors or the knife, and says the ecraseur or galvano-cautery wire should not be employed. He favors making a clean amputation if possible, and covering "the stump by sliding the vaginal tissue over it, and securing the edges of the flaps with sutures."

Marion Sims recommends leaving a raw surface, to which is subsequently applied strong caustics. Sims used the chloride of zinc, but others prefer the pernitrate of mercury. The application is made in the same way as recommended in a previous paragraph.

4. *Extirpation of the uterus.*—In carcinoma involving the body of the uterus, whether primarily or by extension of the disease from the cervix, the only hope of cure lies in a total extirpation of the uterus. How much hope this operation affords is a matter of considerable doubt. It is a fearful resource, and when we remember that, in most cases, at least, the disease has already invaded the lymphatic glands and connective tissue, insuring a more or less speedy return, it is a matter of serious consideration as to whether the ultimate benefit derived is in proportion to the gravity of the operation. Certainly the proportion of those who have survived the operation, and suffered no subsequent return of the disease, are appallingly few, and do not warrant assuming the terrible immediate risks which the operation involves. At the eighth annual meeting of the American Gynecological Society, held at Philadelphia, in 1883, the discussion was extremely antagonistic to the operation. At this meeting Dr. Jackson, of Chicago, presented a paper on the subject which contained the following final summary, with which I fully agree (1):—

1) American Gynecological Transactions. Vol. VIII.

“1. Diagnosis of uterine cancer cannot be made sufficiently early to insure its complete removal by extirpation of the uterus.

“2. When the diagnosis can be established, there is no reasonable hope for a radical cure, and other methods of treatment, far less dangerous than excision of the entire organ, are equally effectual in ameliorating suffering, retarding the progress of the disease, and prolonging life.

“3. Extirpation of the cancerous uterus is a highly dangerous operation, and neither lessens suffering—except in those whom it kills—nor gives reasonable promise of permanent cure in those who recover. Hence it fails in all the essentials of a beneficial operative proceeding, and should not be adopted in modern surgery.”

At a meeting of the British Obstetrical Society, in 1885, the above views were endorsed. The *Lancet* (1) concludes its notice of the latter debate in the following words:—

“No evidence is as yet forthcoming that total extirpation of the uterus for cancer of the body either prolongs life or relieves suffering, while, on the other hand, the mortality after the operation is known to be large, and early recurrence extremely frequent.”

At all events the general practitioner would not think of performing the operation himself. Instead of occupying space to describe its details, I will refer the reader to the works of Winckel, or Hart and Barbour, for further information.

1) *London Lancet*, March 14, 1885.

CHAPTER XXXIV.

DISEASES OF THE UTERINE LIGAMENTS.

HYDROCELE. SOLID TUMORS OF THE ROUND LIGAMENTS. CYSTS OF THE BROAD LIGAMENTS.

HYDROCELE.—This condition is rare. It may exist as an encysted fluid about the round ligament, outside of the peritoneum, or it may be in that process of the peritoneum extending from the internal ring into the labium majus, known as the canal of Nück. In the former case an oval, translucent swelling exists in the inguinal canal, which cannot be returned into the abdominal cavity. It is not tender on pressure and gives rise to no symptoms, but may sometimes be mistaken for incarcerated hernia, or an ovary in the inguinal canal.

If the hydrocele be intra-peritoneal, a more or less firm, fluctuating, transparent tumor, which may be as large as an egg, is found in one of the labia. Aspiration gives a clear fluid. It is also sometimes mistaken for inguinal hernia.

“Fluid may also collect in a sac not lined with serous membrane, but formed in the cellular tissue of the labium majus, which consists of two layers, prolongations of the superficial abdominal fascia. Between these two layers, the analogue of the dartos tunic, a tumor may form, which has the best claim to the name hydrocele” (1).

The usual treatment is aspiration and drainage, or aspiration followed by the injection of a few drops of tincture of iodine. Sometimes the fluid can be returned into the abdominal cavity, and a truss worn to prevent its recurrence.

SOLID TUMORS OF THE ROUND LIGAMENTS.—These are occasionally met with, and are usually upon the right side. They belong to the connective tissue group, being either myoma, fibroma, or sarcoma. They may be intra-peritoneal, in the inguinal canal, or external to it in the abdominal walls, pelvic connective tissue, vulva, or even in “remote portions of the abdominal wall” (2).

These tumors are of a slow growth and give rise to but few symptoms, these being such as are generally the result of pressure, and of no diagnostic value. It is sometimes quite difficult to dif-

1) Winckel, Diseases of Women, p. 55.

2) Winckel, Op. Cit., p. 594.

ferentiate these tumors from hernia, and from fibrous and sarcomatous growths in neighboring parts. They are said to be especially liable to cancerous degeneration, which is manifest by rapid growth, the usual cachexia, emaciation and weakness.

The only treatment for these tumors is their early removal. Dr. Goodell says they are not to be touched unless the symptoms are exacting. According to Winckel, resection of the abdominal muscles and peritoneum, with ligation of the epigastric artery, may eventually be necessary. He says that large tumors of this kind projecting into the true pelvis are not suitable for operation.

CYSTS OF THE BROAD LIGAMENT. PAROVARIAN CYSTS.—These cysts are found between the folds of the broad ligament, and may attain considerable size, so that they have frequently been mistaken for ovarian cysts. They have their origin in the tubules of the parovarium or organ of Rosenmüller, hence the term parovarian cysts. The latter term is practically synonymous with that of cyst of the broad ligament, though it is claimed by some authors that the more simple or benign cysts spring from the broad ligament itself, while those which have a tendency to degenerate have their origin more frequently in the parovarian tubules. There are, however, no practical means of differentiation.

Parovarian cysts are mostly found in young women, and are sometimes congenital. When small, they may cause no symptoms, but when they have increased in size the menses become irregular both as to time of appearance and quantity, as a consequence of the distortion and vascular disturbances produced in the ovary. Striæ appear when the abdomen is much distended, and dyspnœa, palpitation, cough and difficulty in walking occur.

These cysts are usually unilocular, although they may be multilocular, but, if so, the divisions are not readily distinguished. Their walls are usually very thin, and the fluid they contain is so limpid that "they yield very marked waves of fluctuation, which are equally distinct at every point. They can usually be distinguished from ovarian cysts either by a lack of that tenseness so characteristic of the latter, or by varying conditions of tenseness and flaccidity, as if the fluid were sometimes absorbed more quickly than at other times. They also grow more slowly than the ovarian cyst, and do not exert the same profound constitutional impression. The facies ovariana is absent, and the health of the woman may in no wise be disturbed. They, indeed, in the majority of cases, seem to do no harm, and are merely annoying from their bulk. The fluid they contain is with rare exceptions as limpid and clear as spring water, but with refractive powers so high as to magnify the fibres of the wooden pail into which it has been drawn off. Owing to their very thin walls and delicate struc-

ture these cysts on very slight provocation are liable to burst. On account of the blandness of the contained fluid this accident is rarely followed by collapse or by peritonitis. The rent heals up and the cyst usually refills; but in a large proportion of cases it does not, and the woman remains permanently healed. Sometimes they are pedunculated, but often they lie between the two folds of the broad ligament, having no proper stalk" (1).

As an additional means of diagnosis we should remember that these cysts are unilocular, while ovarian cysts are rarely so, and, in such a case, if aspiration yields the clear, limpid fluid, without albumin, and we have associated the characteristics above mentioned, and, especially, if the sac does not refill after tapping, we may be reasonably certain that the cyst is parovarian. The diagnosis is, however, in many instances impossible, as in those cases in which the contents are similar to those of an ovarian cyst, and when the sac refills soon after puncture, as it sometimes does.

TREATMENT.—A unilocular cyst which is presumptively parovarian, though possibly ovarian, should be thoroughly aspirated, after which it may not refill. If, however, the fluid again accumulates, the cyst may be removed in precisely the same manner as an ovarian tumor. In case there is no pedicle the tumor must be carefully enucleated from between the folds of the broad ligament. If this cannot be done owing to the extension of the tumor into the mesocolon, a portion of the cyst may be excised, and the edge of the remainder stitched in the abdominal wound, and a drainage tube introduced.

1) Goodell. *Pepper's System of Medicine*, p. 294.

CHAPTER XXXV.

DISEASES OF THE FALLOPIAN TUBES.

MALFORMATIONS. STRICTURE. INFLAMMATION. PYO-SALPINX. HYDRO-SALPINX. HEMATO-SALPINX. MORBID GROWTHS.

MALFORMATIONS.—Malformations of the Fallopian tubes, though of comparatively frequent occurrence, are of but little practical interest. The tubes may be congenitally occluded; be of unequal length; have an accessory fimbriated end; or, there may be varieties of what is known as Morgagni's hydatid, which is a cystic dilatation of the parovarian tubules. In addition to these anomalies, the fact that the tube originates with the uterus from Müller's duct, causes it to be affected by all malformations of that organ, and when the uterus is wanting, there is also absence of the Fallopian tubes. There may also occur angulations and displacements of the tubes, but these always take place as a result of other anomalies, such as uterine displacements, genital herniæ, uterine and ovarian neoplasms, or on account of adhesions, the result of peri-uterine inflammation. They are thus associated with and dependent upon more important lesions, and are therefore of secondary importance.

STRICTURE.—I do not here refer to congenital occlusion of the tubes, but to acquired closure, which may result either from calcific deposit, senile atrophy, inflammation of the tube, pelvic peritonitis, tubercles, or fibrous tumors. The stricture may occur at the uterine or fimbriated end, or in the middle. It most often occurs at the fimbriated end, and is then due to catarrh of the tubes, which has spread to the peritoneum and set up adhesive peritonitis.

Stricture may cause a retention of fluids, pus, serum or blood (which will again be referred to), but it is of chief importance as a cause of sterility when both tubes are involved. It cannot be diagnosticated during life, nor is there any remedial treatment.

INFLAMMATION ; SALPINGITIS.—Inflammation of the mucous membrane of the tubes may be either acute or chronic. Acute salpingitis is usually a rapid and dangerous disease. It generally results from rapidly spreading puerperal inflammation, but it may be due to gonorrhea extending from the uterine mucous membrane, or to irritating uterine injections extending into the tube, but in

either case extension to the peritoneum soon takes place and a violent peritonitis supervenes, which overshadows the tubal inflammation.

Chronic salpingitis is of more common occurrence, and usually affects both tubes. It occurs mostly in connection with chronic endometritis, metritis or ovaritis, thus rendering its diagnosis obscure and its history uncertain. According to Winckel, (1) "Its most frequent cause is gonorrheal and puerperal infection, though it may occur with myoma, carcinoma, displacements, ovarian disease and exanthematous and infectious diseases, such as cholera and typhoid fever. The menstrual colic of prostitutes is largely due to salpingitis, and the same complaint in young married women may be attributed to sexual excess during wedding tours and to imprudence during menstruation, dancing, riding, etc."

The symptoms are menstrual colic, together with the usual symptoms of pelvic peritonitis. The result of chronic salpingitis in certain cases may be merely the prolongation of the duration of chronic endometritis. In others it may be the means of exciting, at any moment, dangerous inflammation of the peritoneum or ovary; in still others, by obstructing the tube, it may lay the seeds of future dysmenorrhea or of hematocele; or, if causing obstruction at more than one point, may cause distension by the accumulation of pus, blood, mucus or serum, giving rise to the conditions known as pyo-salpinx, hemato-salpinx, or hydro-salpinx.

The treatment of salpingitis consists primarily in the use of the remedy that may be indicated by the symptoms and in keeping the patient quiet, proscribing sexual intercourse, and adopting any other means that may assist in preventing an extension to the peritoneum. Consult Aconite, Arsenicum, Belladonna, Bryonia, Cantharis, Lachesis, Mercurius, Rhus tox.

PYO-SALPINX.—This consists of an accumulation of pus in the Fallopian tubes. Thorburn says, (2) "This affection no doubt exists in many instances of supposed ovaritis with suppuration, and, as has already been said, there is often much difficulty in differentiating it from that, or from abscess due to pelvic cellulitis. Nevertheless, the symptoms and signs are clear enough—upon paper. We have constant wearing pain in one or both groins, increased by every movement, by coitus, and during the menstrual period. We have various disorders of the menstrual function—entire suppression in some cases, irregularity, pain, or profuse increase in others. Coexistent with these symptoms, on one or both sides of the uterus, at a greater or less distance from it, a distinct, soft, obscurely fluctuating swelling, ascertainable bi-manually.

1) Diseases of Women, Parvin, p. 503.

2) Thorburn, Diseases of Women. American Edition, p. 468.

There is great tenderness in the same region, and the swelling may be fixed or somewhat movable, according to the presence or absence of adhesions. It seldom attains a very great size until after a considerable period, and has the laterally elongated direction and sausage-like shape above mentioned. Such signs and symptoms clearly made out, point to the existence of tubal distension, but not necessarily by pus. To complete the diagnosis of pyo-salpinx, we require a history of acute inflammation, although, like all similar histories, it is often difficult to elicit. The inflammation may be ascribed to a chill, or to sudden arrest of menstruation, but more frequently has arisen during the post-puerperal state, or during an attack of gonorrhea. Accompanying the affection, frequent rises of temperature and sudden chills confirm the diagnosis of the purulent character of the swelling. Occasionally a sudden catastrophe arises, from bursting of the swelling into the peritoneal cavity, and a few hours may bring about a fatal collapse. Or the inner obstruction may give way, permitting the discharge of pus into the uterus, and this may happen once and again, and even result in permanent cure. The purulent character of this discharge and the temporary subsidence of the swelling then render the diagnosis almost complete.

According to Dr. Emmett there are no other means of relief than the removal of both tube and ovary, or Tait's operation.

THERAPEUTICS.

How far appropriate internal remedies may go toward controlling this and other tubal affections remains yet to be demonstrated. Dr. Gatchell reports a case of pyo-salpinx cured with *Apis mel.* The remedies most often required according to the symptoms of the individual case are:—*Apis*, *Arsenicum*, *Conium*, *Graphites*, *Hepar sulph.*, *Lachesis*, *Lycopodium*, *Mercurius*, *Silicea*, *Sulphur* and *Zinc*.

HEPAR SULPH.—When suppuration is feared this remedy may be given in a high potency with the hope of preventing it, but more often *Hepar* is required in a low potency to promote an already existing suppurative process and hasten its termination.

MERCURIUS.—This is probably our most valuable remedy to cause an absorption of pus and bring about resolution. If absorption has already occurred, and symptoms of septicæmia are developing, *Mercurius* stands second only to *Arsenicum*. The symptoms most often calling for *Mercurius* under such circumstances, are creeping chills; much perspiration without relief; great weakness and prostration; pale, earthy complexion; abdomen hard, distended and painful.

SILICEA.—This remedy is of value in long standing chronic

cases, where the suppurative process has been long continued and is producing a great drain upon the system.

HYDRO-SALPINX.—This condition, otherwise known as tubal dropsy, is a distension of the Fallopian tube with serum (Fig. 180). The distension may be quite marked, and be in size from that of an apple to a child's head and even larger, sometimes closely simulating a cyst of the ovary or broad ligament. There may be more than one stricture in the course of the tube, and therefore a corresponding number of cysts. The form of the tube is much changed, being often convoluted and bent, thickened in some places and thinned in others. The fluid may be either serous, muco-

FIG. 180.—Tubal dropsy. (Bolvin and Dugès.)

serous or granular, and may contain plates of cholesterin, and sometimes blood.

SYMPTOMS.—According to Winckel (1) the symptoms of tubal dropsy "result from the condition to which it owes its origin rather than from its size and the pressure it causes. The chief symptoms of many of these affections are those of pelvi-peritonitis. In tubal dropsy each periodical evacuation is preceded by violent pain, which afterward subsides. As both tubes are usually affected, the patient is sterile; this is, as a rule, true when the affection is unilateral, for the other tube is either bent, fixed by adhesions, or is catarrhal. We know but little of the menstrual disorders dependent upon this condition. When there is a history of gonorrhœal infection, the symptoms are dependent quite as much upon the disease of the uterine mucous membrane as upon that of the tube."

DIAGNOSIS.—The diagnosis is difficult, but has often been

1) *Op. Cit.*, p. 496.

established. Vaginal examination reveals the distended tube lying toward the bottom of Douglas' cul-de-sac, where it is liable to be mistaken for an ovarian or parovarian cyst, but rectal examination shows that its outline is unlike the accumulation of any other fluid to be found in the pelvis, for the tube as it fills twists upon itself, like a distended intestine. The character of the cyst contents will often exclude ovarian and parovarian cysts.

PROGNOSIS.—This is usually favorable. The accumulation generally takes place slowly and causes but little discomfort. The contents are sometimes evacuated through the uterus, giving rise to what is known as profluent dropsy of the uterus. Rupture of the tube rarely occurs, and when it does the fluid is generally so bland that it creates no disturbance, and the tube does not usually refill. This accounts for some of the reported spontaneous cures of supposed ovarian cysts.

The treatment consists either in aspirating through the vagina or abdominal incision according to Tait's method, if the symptoms are sufficiently grave to render such a course justifiable. The remedies most often indicated are Apis and Arsenicum.

HEMATO-SALPINX.—This consists of an accumulation of blood within the tube. It is of rare occurrence. Dr. Emmett says he has never known of an instance of blood accumulating in the Fallopian tubes unless it was secondary to the retention of menstrual blood in the uterus, and as such it should not be recognized as a distinct condition. Knowing, as we now do, that the tubes may, and sometimes do, partake in the congestion and sanguinous discharge of menstruation, it is not surprising that a tubal dilatation should sometimes contain blood. The accumulation may take place, and, if coagulated, remain, though the tube be permeable. In such a case, the numerous folds in the mucous membrane cause the retention of the clot. But the blood does not usually coagulate, being retained by stricture. The size of the sac is variable, sometimes growing as large as an orange. Sometimes the walls become very thin, or else ulcerate, and rupture takes place, with a discharge of the contents into the peritoneal cavity, causing sudden death. The form and location of the tumor is similar to that of hydro-salpinx, and the symptoms are the same save that they are more uniformly aggravated at each menstrual period.

TREATMENT.—Operative measures are to be avoided if possible. Aspiration avails but little, and either abdominal or vaginal puncture is dangerous. Tait's operation may be performed if rupture is imminent, and it might save life even after the perforation has occurred.

TUBO-OVARIAN CYSTS.—This is a term applied to those cysts whose walls are in part formed by the Fallopian tube and in part

by the ovary. They result from adhesions between the fimbriated end of the Fallopian tube and the ovary, with degeneration of the corpora lutea of the Graafian follicles thus enclosed. The greater part of the cyst is formed by the ovary. The contents may be poured into the uterus along the tube, and collapse of the sac take place.

MORBID GROWTHS.—Small connective tissue growths, such as cancer, sarcoma, fibroma, tubercle and lipoma, are sometimes discovered in the tubes at post mortem, but are never found during life except as associated with coexisting disease of other organs, and therefore are of no practical importance.

TAIT'S OPERATION.—This consists in the removal of the uterine appendages. Both ovaries and tubes are usually removed, as it seldom happens that one tube is so diseased as to require removal while the other is in a healthy condition. For a description of the operation I am indebted to Dr. Emmett (1).

For the operation a small opening is first made in the median line, about half-way between the umbilicus and the pubes. The abdominal parietes are usually very thick, with an inch or more of fat, and unyielding, so that it is difficult to accomplish the step properly. As a vessel is cut an assistant must seize it with a pair of forceps made for the purpose, and all oozing must be arrested before opening the peritoneal cavity. Dividing the peritoneum is also a step requiring some judgment; it is to be caught up with a fine tenaculum or forceps, and an opening made with care so as not to wound the intestines, which lie directly against it, or with only the omentum intervening. The index and middle fingers of the left hand are to be passed into the pelvis first in search of the fundus of the uterus, which is to be the guide, and from this to either side the finger passes along the tube to the ovary. If the ovary can be drawn up into the wound it is better to do so at once, but some judgment must be exercised as to the amount of traction it might be safe to exert. This is particularly the case when the tube is greatly distended, as rupture would readily take place and allow the contents to escape into the peritoneal cavity. It is better when this condition exists to enlarge the opening sufficiently, then place a sponge in position, to catch any escaping fluid, while the aspirator is used to draw off the contents of the tube. After this has been done the ligature is to be applied. The ovary can be drawn up into the abdominal wound, between the two fingers, so that it may be transfixed by a large tenaculum, or grasped by a strong pair of forceps, which can be clasped. As the ovary is drawn up with the instrument and the edges of the wound are

1) Principles and Practice of Gynecology, p. 646.

sufficiently depressed by an assistant, the tube will be brought into view, with a portion of the uterus. The operator must stand in a position facing the light, so that he can see to pass a loop, forming a double ligature, through the center of the broad ligament without wounding the vessels. The loop end is cut in two and one ligature is carried across the other to form two links when tied, or the tissue would split between. One ligature is then tied near the horn of the uterus, to include the Fallopian tube and vessels beneath; and the outer one is passed around the ovary and tied below, as this ovary is lifted up. The ovary and tube are then cut off in one mass and as close as can be done without leaving too little tissue to hold the ligature. Then the appendages on the other side are removed in the same manner. Mr. Tait uses what he terms the "Staffordshire knot," which secures the parts in the same manner within two loops, the one being linked through the other. He passes a loop through the center of the broad ligament, then the loop is turned back toward him, so as to include the ovary in one part and the tube in the other. It is only necessary now to pass one free end of the ligature through the loop, so that it will lie between the two, draw both as tight as possible, tie in a square knot, and cut the ends off so that the stump may be dropped back into the cavity.

Let the reader lay a loop of cord between the index and adjoining finger, then turn the loop back over the top of the fingers, pass one of the loose ends under the loop, draw both tight, and tie. This will give the "Staffordshire knot."

The ligature to be used should be silk, and properly prepared by being thoroughly boiled, then carbolized, kept in antiseptic fluid until used, and it should be handled by no one but the operator. The peritoneal cavity must be thoroughly cleansed of any fluid which may have escaped from the tubes, and of all blood. As the fluid gravitates, it will be found chiefly in the bottom of Douglas' cul-de-sac. To remove this properly the left hand should be introduced, with the knuckles toward the intestines, and as they are pressed back a sponge can be passed along the palm of the hand to the bottom of the cavity. The abdominal incision is then closed in the usual manner.

CHAPTER XXXVI.

DISEASES OF THE OVARIES.

**ABSENCE; IMPERFECT DEVELOPMENT; ATROPHY; HEMORRHAGE;
DISPLACEMENTS; HERNIA.**

ABSENCE.—An entire absence of both ovaries is found only in connection with an absence of the uterus, and sometimes, also, of the vagina and vulva. Such cases are congenital, and are of very rare occurrence. Usually under such circumstances the figure remains undeveloped, there is no effort of nature to establish the menstrual functions, and the girl shows a deficient state of development, both mental and physical.

IMPERFECT DEVELOPMENT.—In some instances the ovaries are present, but fail to undergo the normal development of childhood and puberty, often, indeed, retaining their foetal state. If occurring in one ovary, the perfect ovary may perform its functions normally, but usually both ovaries are in the same condition. If so, the menses are entirely absent, and the girl presents none of the usual evidences of transition to womanhood, though the vulva, vagina and uterus are in a normal condition.

TREATMENT.—In cases of congenital absence of the ovaries it is of course worse than useless to attempt any form of treatment. If, however, we are satisfied that the condition is only one of imperfect development, and if the health is evidently being impaired, it is proper to attempt their stimulation and development. This is usually best accomplished by the use of the galvanic current. The positive pole should be placed over the lumbar region, and the ovarian region on each side treated with the negative pole. Or, still better, apply the positive pole to the cervix by means of an insulated uterine electrode. Sometimes gentle irritation of the uterus with the uterine sound will answer a good purpose, or the introduction of a slippery-elm tent. At the same time the patient should receive from time to time such internal remedies as her symptoms may indicate, and be allowed plenty of exercise in the open air and the benefit of such other hygienic measures as her condition may suggest. Often sexual intercourse will prove the best stimulant, marriage having in many instances brought development and vigor to the organs.

ATROPHY.—Normal atrophy of the ovaries takes place at about forty-five years of age, but may occur abnormally at a much

earlier period, though such instances are extremely rare. If this condition is simply manifest by a cessation of menstruation, or premature menopause, and is not associated with symptoms of deranged health, it is not advisable to resort to treatment. If, however, the patient's health is suffering, she should receive about the same course of treatment as has already been recommended for an imperfect development of the ovaries.

HEMORRHAGE.—At each menstrual period, when ovulation takes place, a normal hemorrhage, or apoplexy of the ovaries, takes place. This condition lasts but a short time and its effects readily disappear. Sometimes, however, this process becomes abnormal, the quantity of blood escaping being in excess of the peripheral follicles, leaving projecting sacs filled with slightly coagulated blood, and varying in size from a pea to that of an orange. Should this cause a complete rupture of the tunica albuginea, the blood escapes into the pelvic cavity and constitutes pelvic hematocele. Usually the apoplectic follicles shrink after the manner of the corpora lutea, and sometimes after the resorption of the extravasated blood they remain as cysts and continue to grow, (1) developing a cystic tumor of the ovary. There are no diagnostic symptoms, unless pelvic peritonitis is established or hematocele occurs, when we have the characteristic symptoms of these diseases, and should treat the case accordingly.

DISPLACEMENTS.—Aside from a displacement of the ovary into a hernial sac, which will be hereafter considered, prolapsus of the ovary is the most important displacement. The ovaries, being extremely mobile, are quite liable to displacement, which may arise, according to Barnes (2)—

1. From change in its own condition, as of bulk, the result of inflammation or other diseases.
2. From pressure of other organs or structures upon it, as tumors.
3. From dragging of the uterus.
4. From inflammatory adhesions binding it down in unnatural positions.
5. From relaxation of the vagina and other structures, which support the uterus and ovaries *in situ*.

According to Mundé the varieties of prolapsus are—

- (1) Recto-lateral, in the lateral pouch of Douglas;
- (2) Retro-uterine, in the true pouch of Douglas;
- (3) Ante-uterine, in the anterior fornix, very rare;
- (4) In the infundibulum of an inverted uterus.

The two first named are of the most frequent occurrence.

1) Barnes' Diseases of Women, p. 225.

2) Op. Cit., p. 252.

SYMPTOMS.—Pain on locomotion is the most important symptom. It arises from the irritation and pressure made upon the prolapsed ovary while walking. The pain is referred to the inguinal and sacral regions, and is of a sickening and exhausting character. Sometimes the pain is sharp and occurs suddenly, running down the corresponding thigh along the track of the genito-crural nerve.

The patient also complains of throbbing or radiating pains during defecation, which arises from the grating of the hardened feces over the tender glands. There is also pain on coition, the ovary lying so low down that it is bruised by the male organ. There is also considerable bearing down, various reflex nervous symptoms, and general irritability.

PHYSICAL EXAMINATION.—Examination of this character will reveal in the true or lateral pouch of Douglas, one or two, as the case may be, very tender, almond-shaped bodies, lying distinct from the uterus. Pressure upon these produces a sickening pain, like that when the testicle is squeezed. If the pressure be increased, and be so made that one of these bodies slips abruptly away from under the finger, such a thrill of indescribable pain darts through the groins and down the side of the corresponding thigh that the woman screams out and grows pale or becomes nauseated.

TREATMENT.—Remedies should be prescribed according to the nature of the symptoms, in order to aid in overcoming the irritation and congestion which is almost invariably present. Hot water injections should be persistently used, and a glycerine tampon is often of great value. Pessaries, as a rule, do more harm than good.

A very excellent way of keeping up the ovaries is the knee-chest posture devised by Dr. H. F. Campbell, of Georgia (1). Two

FIG. 181.—Mundé's Pessary for Prolapsed Ovary.

or three times a day, or more frequently if needful, the woman unbuttons her dress, unhooks her corsets, and loosens her underclothing. She then kneels on her bed with her body bent forward until her chest is brought down to the surface of the bed, while

1) Pepper's System of Practical Medicine, Vol. IV, p. 288.

her head is turned to one side and the lower cheek supported in the palm of the corresponding hand. Her knees should be about ten inches apart and the thighs perpendicular to the bed. The trunk of the woman's body is now supported like a tripod, by her two knees and the upper portion of her thorax. If she now refrains from straining and breathes naturally, a reversal of gravity will be established. With the fingers of her free hand she next opens the vulva. Air will rush in, distending the vagina, and the contents of the abdomen will at once sink toward the diaphragm. This will, of course, draw the womb and the displaced ovaries out of the pelvic basin. As it is rather awkward for a woman while in this posture to free one hand to reach the vulva, Campbell advises that previously to taking this attitude she should insert into the vagina a small glass tube open at each end and long enough to project externally. This will leave an air-way and dispense with the use of the fingers. After staying in this posture for a few minutes, the woman removes the tube and slowly turns over on her side, where she is to lie as long as she can. Such constant replacements are of great service, for they lessen the throbbing, give the limp ligaments a chance of shrinking and of keeping the truant ovaries at home.

In case the prolapsus cannot be controlled, or the ovary is bound down by adhesions, and the patient is suffering great inconvenience, the propriety of removal may be considered.

HERNIA.—The term hernia is limited to those cases where the ovary enters a hernial sac. The most common form is the inguinal, but it may occur in a crural, abdominal, vaginal, sub-pubic or ischiatic hernia. The difficulty is usually congenital, but may be acquired, and may be either single or double.

SYMPTOMS and DIAGNOSIS.—There is always the peculiar ovarian tenderness and nausea upon pressure, and the tumor becomes swollen near the time for the menstrual flow. The connection of the tumor with the uterus may be ascertained by drawing the latter down with a volsella. The diagnosis from an ordinary hernia is most important.

TREATMENT.—Usually the ovary is fixed down by adhesions. In such cases a protecting concave pad may be worn, or, if circumstances warrant, the displaced gland may be removed. If the hernia is reducible, taxis should be employed, and a suitable bandage or truss should be applied.

CHAPTER XXXVII.

OVARIAN NEURALGIA.

SYNONYMS.—Ovaralgia; Oophoralgia; Ovarian irritation.

DEFINITION.—An affection of the nerves of the ovaries characterized by pain, but without inflammation or organic change in the organs. This disorder is extremely distressing and often lasts for years, making the patient's existence utterly miserable.

ETIOLOGY.—The predisposing causes of ovarian neuralgia are, to a considerable extent, the same as those which predispose to other forms of neuralgia. An inherited nervous organization, a neuralgic or rheumatic diathesis, or a hysterical temperament, favor the development of this disease.

The exciting causes embrace any source of nerve irritation liable to affect the pelvic viscera. It is, therefore, frequently associated with other diseases, especially those of the generative organs, as a purely sympathetic disorder. Marital excesses are a frequent cause, as is also the imperfect performance of the sexual act, or its entire absence, especially in widows. The normal congestion of the female organs during menstruation may excite ovarian neuralgia, and it has been frequently reported as occurring simultaneously with the ripening and discharge of the ovum each month. Dr. Julia Holmes Smith very aptly says, (1) that undue sexual excitement, whether legitimate or otherwise, the abnormal life of the society woman, with its novel-reading, theater-going, and social excesses, the persistent standing of young women in stores, wearing, as they do, too heavy skirts, high-heeled shoes, and corsets, all have a tendency to promote ovaralgia and other ultra-pelvic ailments.

Uterine displacements and other pelvic disturbances may cause ovarian neuralgia, but in such instances I opine that the entire disorder more likely arises from a feeble nervous organization, and the whole may be considered as a constitutional rather than a local disease.

SYMPTOMS.—The chief symptom is a sudden and acute pain occurring in paroxysms, rarely affecting both ovaries at the same time, more often the left, but frequently alternating. The pain is moderated by firm pressure, which, however, at the same time often excites nausea and vomiting, and sometimes hysterical phe-

1) Arndt's System of Medicine, Vol. II, p. 332.

nomena. Dr. Ludlam says that, "contrary to the general rule in neuralgia, the pain is increased by the touch and by pressure, whether it is slightly or more firmly applied." But this is not according to the experience of other eminent observers. Dr. Ludlam (1) describes the pain as being "sudden, intense, excruciating, stabbing, cramp-like, and is apt to be accompanied by bending of the body toward the affected side, by fainting, falling, vomiting, hysterical spasms, delirium, or diuresis. Sometimes it radiates, and, in chronic cases (as also those which occur in pregnancy) it may extend along the corresponding thigh. Usually, however, it is circumscribed and limited to the site of the ovary, which varies in different women and at different periods."

When occurring at the period of menstruation this affection constitutes neuralgic dysmenorrhea, elsewhere described.

DIAGNOSIS.—This is usually readily established. The sudden, excruciating pains, relieved by pressing, and often disappearing as suddenly as they come, the absence of inflammatory symptoms, and the general history of the case, is usually all-sufficient to exclude ovaritis, with which it is most apt to be confounded.

PROGNOSIS.—Many cases are radically cured under homeopathic treatment, yet the disease is very persistent, and often gives rise to many sympathetic cardiac and other disturbances which make the patient's existence almost unendurable, though life itself is never directly endangered.

TREATMENT.—The ordinary hygienic and dietetic rules for building up and strengthening the nervous system should be carefully observed. Plenty of fresh air and sunlight; systematic moderate exercise; regularity of habits; nourishing food, such as meat, eggs, milk and oysters; proper clothing, especially flannel over the hypogastric region, and pleasant surroundings are of the utmost importance. Abstinence from sexual excitement or indulgence must be observed. Often the most radical change of habits are necessary, and can only be accomplished by means of great tact and persistence.

During the attacks hot applications afford the most immediate relief. Hot fomentations, hot salt bags, or, still better, a rubber bag filled with hot water. Chloroform liniment often gives relief. Sometimes hot water vaginal injections afford great relief. A vaginal or rectal injection composed of chloroform one drachm, and olive oil and glycerine each one ounce, is mentioned by Dr. Ludlam. If the rectum is loaded with feces, relief of the pain is often experienced immediately after their removal by an enema. Under no circumstances should resort be had to the use of morphine.

1) Lectures on the Diseases of Women, p. 739.

THERAPEUTICS.

CIMICIFUGA.—A valuable remedy, especially when the left ovary is involved, and in patients of rheumatic or neuralgic diathesis, who have dysmenorrhea or amenorrhea.

BELLADONNA.—Enlargement of the right ovary, with pressure downward, as if everything would be forced out of the vulva; pains circumscribed and stabbing, or darting and lancinating; the pains come and go suddenly; cerebral disturbances and spasms.

BROMIDE OF AMMONIUM.—Ovarian neuralgia; dull constant pain and hard swelling in left ovary; uterine hemorrhage from ovarian irritation or inflammation.

COLOCYNTH.—I find more useful than any other remedy. Stitches in ovaries, diarrhea, colic, pressure in abdomen, tenesmus, or intense boring tensive pain in ovary, causing her to draw up double, with great restlessness.

IGNATIA.—When caused by grief or sorrow; sharp, irritating pain; hysteria; involuntary sighing; despondency.

LILIUM TIGRINUM.—The ovary feels as if squeezed in a vise, with stinging, darting pains; sensation of swelling and tenderness to firm pressure, relieved by moderate pressure and gentle rubbing; sympathetic cardiac disturbances.

Also consult Aconite, Chininum sulph., Zincum, Conium, Platinum, Ferrum, Naja, Gelsemium, Veratrum viride, Viburnum op.

CHAPTER XXXVIII.

INFLAMMATION OF THE OVARIES.

SYNONYMS.—Ovaritis; Oophoritis; Peri-oophoritis.

DEFINITION.—An acute or chronic inflammation of the tissue composing the ovaries.

VARIETIES.—There are two varieties of ovaritis, the parenchymatous, or follicular, in which the tissue proper of the gland—the Graafian follicles—is involved, and the interstitial, in which the connective tissue stroma is inflamed. Some authors also mention a simple inflammation of the investing membrane, but it can scarcely be shown that this form exists independent of the interstitial variety, which most frequently occurs as an extension of peritonitis.

Follicular ovaritis is of most frequent occurrence, being often present in the course of acute febrile diseases. This form is of importance only because, when it attains a very high degree, it may end in destruction of all the follicles, and so result in sterility. Follicular ovaritis also occurs in connection with inflammation of the neighboring serous membrane, as in peri-metritis and peritonitis, but in these cases it is only of secondary importance, as the changes in the peritoneum are far greater and more dangerous. The interstitial variety is the form met with in connection with suppressed menstruation (1).

ACUTE OVARITIS.—Outside of the puerperal state, which I shall not consider, uncomplicated acute ovaritis is a very rare disease, but it often occurs in connection with pelvic peritonitis or pelvic cellulitis.

Dr. Matthews Duncan regards all peri-uterine inflammations as always symptomatic affections; as secondary to uterine, tubal or ovarian disease, or noxious discharges entering the peritoneal cavity through the tube. While probably so sweeping an assertion can hardly be sustained, yet it is quite certain that very intimate relations exist between inflammation of the ovaries and pelvic peritonitis and cellulitis, though it is more than likely that the ovaritis is sometimes, at least, the primary disease.

ETIOLOGY.—As has already been intimated, pelvic peritonitis and pelvic cellulitis are the most frequent causes. Acute ovaritis may also be caused by taking cold during menstruation; by acute

1) Schroeder, Ziemssen, Vol. X, p. 851.

infectious and febrile diseases; by the use of instruments in exploring the uterus, and after surgical operations upon the pelvic viscera. So, too, may be noted any of the causes which give rise to peritonitis or cellulitis.

SYMPTOMS.—In addition to the chill, fever, excessive sensitiveness, etc., which are indicative of peritonitis, the patient complains of a deep-seated pelvic pain, pain at the side radiating to the back, and pain on pressure, in the iliac fossæ. Bi-manual examination reveals the ovaries considerably enlarged, often about the size of a walnut, mobile, and very sensitive, pressure causing great pain of a sickening character. These symptoms may subside upon the occurrence of resolution, in four or five days; or, pus formed within the gland may be discharged into the peritoneum, the rectum, the vagina, or the bladder; or, the symptoms may become less intense and the inflammation assume a chronic form, with frequently occurring attacks of local peritonitis. If an abscess of the ovary occur, we have, according to Barnes (1), the following terminations:

1. The ovary may burst into the peritoneum, causing abdominal shock, collapse, or peritonitis.
2. Small perforations may take place, exciting more circumscribed peritonitis, and leading to plastic effusions surrounding the diseased ovary.
3. Adhesions may be formed within the bladder or intestine, and a fistulous communication be established, by which the pus may be more or less completely discharged.
4. The suppurating ovary being the focus of a pelvic inflammation, by discharging into the rectum, vagina, or externally above Pourpart's ligament.

DIAGNOSIS.—The intimate association of acute ovaritis with other pelvic inflammations renders it impossible to positively differentiate it from these diseases.

PROGNOSIS.—The prognosis is usually favorable. Under homeopathic treatment resolution rarely fails to take place within a few days.

TREATMENT.—The patient should be kept quiet, and either dry heat, hot fomentations, or the hot water bag applied to the surface. Hot water vaginal injections should be used, and care be taken that the rectum be not allowed to become loaded with feces, frequent enemata being usually desirable.

The chief remedies are—

ACONITE.—In the beginning of the attack; chill; high fever; restlessness, and the usual symptoms of acute inflammation.

BELLADONNA.—Circumscribed, darting, lancinating pains: intense local inflammation; flushed face, throbbing carotids and bounding pulse.

1) Diseases of Women, p. 266.

BRYONIA.—Often follows Aconite well, or Belladonna after the more violent inflammatory symptoms have subsided. Sharp stitching pains, worse from taking a deep inspiration or from the least pressure or motion.

If suppuration occurs, consult: Arsenicum, Cinchona, Hepar sulph., Lachesis, Mercurius, Silicea.

CHRONIC OVARITIS.—The chronic form of ovaritis is not uncommon, though of how frequent occurrence it is not possible to exactly estimate, owing to the probable fact that many obscure diseases of the Fallopian tubes, ovaries and other pelvic viscera, including peritonitis, are often diagnosed as ovaritis.

ETIOLOGY.—Chronic ovaritis often succeeds the acute form and the causes are similar to those which induce the latter. Especially do we find that chronic ovaritis is usually coincident with cellulitis and peritonitis, and probably secondary thereto. Chronic ovaritis may also arise from the irritation of uterine tumors or displacements, subinvolution, or from a lacerated cervix or perineum. Also from excessive sexual indulgence and onanism, or, on the other hand, from absence of sexual gratification, or an imperfect performance of the sexual act. It may also arise in women who are sterile, the normal menstrual congestion not receiving the rest nature has intended during the period of pregnancy and lactation.

So, too, do emotional disturbances sometimes serve as important etiological factors; disappointed love, unhappy marriages, corrupt literature, etc., are not uncommon causes.

SYMPTOMS.—The symptoms of chronic ovaritis are about the same as in the acute form, though much milder in degree, and presenting a chronic history. They are often numerous, and quite perplexing, no two cases presenting precisely the same features. Sometimes the symptoms are entirely physical, while at other times mental phenomena are prominent. In most cases there will be found a fixed, heavy pain or ache over one or both ovaries, more especially the left, increased by walking or standing and from pressure, better upon lying down; also pain starting usually from the ovary and radiating to the small of back, the rectum, or down the inner side of the right thigh. This may take the form of dysmenorrhea, the pains beginning several days before menstruation, increasing gradually until the flow appears and then gradually abating. Usually in the earlier stages the menses are increased in quantity and frequency, and severe hemorrhagic attacks may occur at irregular intervals, but later the flow becomes either diminished or suppressed, probably on account of the follicular structure having become impaired. Leucorrhea is usually present, but cannot be considered a diagnostic symptom.

Sterility is a usual consequence of chronic ovaritis, and by some authors it is enumerated as a symptom. It may result on account of the pain rendering complete copulation impossible, but more likely from the fact that adhesions are present or that the follicles of the ovaries are obliterated, either from atrophy or induration. Sterility, however, is not a necessary consequence, as both ovaries may not be implicated, or, if they are not involved to an extent sufficient to cause an entire obliteration of all the follicles, those remaining in a healthy condition may produce ova.

If the ovary be prolapsed, there is usually painful coition and also pain and exhaustion on defecation.

Various reflex nervous symptoms and functional disturbances may arise, only less protean in their character than those of hysteria, which itself is often, in its various manifestations, a prominent feature of this disease.

Physical examination reveals either behind or on one or both sides of the uterus, a round, soft, tender body, about the size of an almond, extremely sensitive to pressure, which usually produces nausea and a tendency to hysteria.

PROGNOSIS.—Chronic ovaritis seldom proves fatal, but it is a very intractable disease, and sometimes proves incurable. The secondary results are often more to be feared. Suppuration sometimes results, and a destruction of the organ follows. In addition, the patient is subject to peritonitis, and other dangers usually associated with ovarian abscess. In fact, Aran holds that the greatest danger of chronic ovaritis is the constant liability to peritonitis, even without suppuration. Sometimes the ovaries become fixed by adhesive bands, with the usual results—amenorrhea, dysmenorrhea, and possibly sterility. Sterility may also result from consequent atrophy, or induration, as already mentioned.

Sometimes cystic degeneration results, and we have an ovarian tumor requiring surgical interference.

TREATMENT.—The hot water douche should be employed daily, or, if this cannot be done, a hot sitz-bath should be used. The glycerine plug may be employed as often as two or three times a week. It is made as follows: Take a square piece of absorbent cotton-wool about the size of the palm of the hand; pour on its center about two drams of glycerine; turn the corners over and squeeze the whole so as to saturate it; lastly, tie a piece of thread, about eight inches long, around it. Pass Sims' or Fergusson's speculum, and place the plug in the fornix below the ovary. It should be left in from 18 to 24 hours, and then withdrawn. This plug reduces congestion, owing to the affinity of glycerine for water, has an antiseptic action, and, as we shall see, forms an admirable pessary. It sets up a watery discharge, for which the patient should be told to wear a diaper.

According to Dr. Goodell, (1) "The best of all treatments, and by far the best, is that devised for nerve exhaustion by S. Weir Mitchell, which goes by the name of the rest-cure. It consists of a prolonged rest in bed, seclusion from friends, massage, electricity, muscular movements, and a diet consisting largely of milk. By this treatment the circulation of the blood is made equable, and the ovaries and other pelvic organs are thus relieved of their turgescence. I have had wonderful cures from this treatment, and can recommend it with the utmost confidence. Bed-ridden patients have been restored to health, and chronic invalids returned to society." Sexual intercourse should be prohibited unless the desire is so strong that the patient is suffering from it, or, unless there is a hope of producing conception, thus giving the ovaries a prolonged rest during the period of gestation and lactation, which is very desirable, and may in itself effect a cure. During the menstrual period the patient should, most of the time, remain in a recumbent posture, but at other times she is to be encouraged to moderate and systematic exercise, though never carrying this to the point of over-fatigue. Dr. Ludlam recommends the external use of Hamamelis, and if the ovaries are prolapsed a solution of Hamamelis, with Glycerine added, as a vaginal injection.

As might be expected, chronic ovaritis, with its various complications, may cause to be indicated almost any remedy in the *Materia Medica*. Those most often used are the following:

APIS.—Stinging, burning pains; enlargement of right ovary, with pains in left pectoral region and cough from sympathy; especially when right ovary is involved.

BELLADONNA.—Dr. Ludlam says this remedy is especially useful when the attack is ushered in by marked symptoms of local congestion. The pains are circumscribed and stabbing in character, darting and lancinating; cerebral disturbances and spasms.

CIMICIFUGA.—I consider this our most useful remedy. Ovaritis with irritable uterus; hysterical symptoms and rheumatism; irregular, suppressed or painful menstruation.

COLOCYNTH.—Ovaritis supervening on abortion; stitches in ovaries, diarrhea, colic, pressure in abdomen, tenesmus, or intense boring tensive pain in ovary, causing her to draw up double with great restlessness.

IGNATIA.—Caused by disappointed affection or trouble, involuntary sighing, great despondency; weak empty feeling of stomach.

Also consult *Cantharis*, *Conium*, *Hepar sulph.*, *Gelsemium*, *Lachesis*, *Mercurius vivus.*, *Nux vom.*, *Platinum*, *Staphysagia*, *Veratrum viride*, *Zincum*.

1) *Pepper's System of Medicine*, Vol. IV, p. 288.

CHAPTER XXXIX.

OVARIAN TUMORS.

VARIETIES.—Owing to the comparatively modern history of ovarian pathology as relating to tumors, there are scarcely any two authors agreeing upon the subject, and, therefore, little uniformity of opinion as regards their varieties or mode of origin. I shall attempt to describe only such varieties as are well established, and which are likely to be met with in practice. They may be divided in general terms into solid and cystic, either of which may be either benign or malignant. The following table will best explain their relations:

Ovarian tumors:	{	Solid tumors:	{ Carcinoma;
			{ Fibroma.
		Cystic tumors:	{ Cysto-carcinoma;
			{ Cysto-fibroma, or, Sarcoma;
			{ Dermoid cysts;
			{ Follicular cysts, or hydrops folliculorum;
			{ Cystoma.

Solid tumors are very rare, of slow growth, and seldom reach a large size.

SOLID CARCINOMA.—Cancer of the ovaries rarely occurs as a primary disease, but usually as secondary to cancerous disease in other organs. It may be in the form of a true scirrhus degeneration, and present the same characteristics both in symptoms and physical appearance as scirrhus in other organs, and may vary in size from that of a walnut to a man's head. The tumor may present a nodular appearance, or, if the whole gland be involved, the cancerous mass may retain very nearly the form of the ovary.

The ovary may also be the seat of medullary cancer deposit, "which may originate in the vesicles of DeGraaf; in a corpus luteum, as Rokitansky once saw it do; or in the stroma of the organ. Distension sometimes causes rupture of the tunica albuginea of the ovary, and then an exuberant medullary growth develops in contact with the peritoneum and abdominal viscera" (1).

1) Thomas, Diseases of Women, p. 658.

Cancer of the ovary usually, but not always, forms adhesive connection with neighboring organs, and thus becomes fixed and immovable. According to Thomas, (1) "The symptoms which generally point to the malignant character of an ovarian tumor are these:

- "1. The rapid development of a solid tumor in an ovary.
- "2. Marked depreciation of the strength, vital forces, spirits, and general condition of the patient.
- "3. The occurrence of œdema pedum and spanæmia, with a small tumor, which are consequently dependent upon a general blood state, and not upon the results of pressure by the tumor.
- "4. Lancinating and burning pains through the tumor.
- "5. Cachectic appearance.
- "6. The occurrence of ascites without evidences of cirrhosis or other hepatic disease, organic disease of the kidneys or heart, or chronic peritonitis."

In most instances the hardness of the tumor, together with its nodular surface, will be an important aid in diagnosis, as will also the fact that usually the cervix is deeply retracted into the vaginal vault, and that ordinarily both ovaries are involved. The treatment is purely palliative. Often the indicated remedy will relieve the patient's sufferings and prolong life, but a cure is impossible. For this reason surgical interference should not be employed.

FIBROMA.—Fibrous tumors of the ovary are of very rare occurrence, and seldom attain a large size. They involve the whole organ, and sometimes undergo partial degeneration into bony or cartilaginous structures. Their general structure resembles that of an ordinary fibroid tumor of the uterus, being composed of connective tissue and smooth muscular fibre, the result of hypertrophy of the stroma of the ovary.

Fibrous tumors of the ovary may cause some disturbance of the system, but present no characteristic symptoms.

The diagnosis from a pedunculated fibroid of the uterus is practically impossible. From an ovarian cyst it can be distinguished by its hardness, its slight mobility, and its gradual growth; and from cancer by its gradual growth and symmetrical surface, and by the fact that it can be isolated. The prognosis is more favorable than in other forms of ovarian tumors. They grow slowly, as a rule, and cause but little inconvenience, though sometimes giving rise to local peritonitis and consequent ascites. Sometimes they cease growing and remain stationary during life.

The treatment is purely symptomatic. Only occasionally does their size and the disturbance they create make it necessary to remove them, and in such cases ovariectomy may be performed.

1) Op. Cit., p. 654.

CHAPTER XL.

CYSTIC TUMORS OF THE OVARY.

CYSTIC tumors of the ovary are of far more frequent occurrence than the solid variety. They are divided for clinical purposes into simple unilocular cysts, or mono-cysts, and compound or multilocular, or poly-cysts. They may be purely cystic in their character, or be complicated with cancerous or sarcomatous degeneration. There is also a distinct variety known as the dermoid cyst.

CYSTO-CARCINOMA.—This may be the result of a cancerous degeneration of a benign cyst, or the cystic growth may develop secondarily from a previously existing cancer of the ovary, so that we may have cancer complicating cystic degeneration, or cystic degeneration complicating cancer. Sometimes the carcinomatous condition may be detected by the application of the rules already mentioned for solid carcinoma, but it must be remembered that cancer may be present and none of these conditions be fulfilled, the naked eye not being able to discover any signs of malignancy. In such instances the patient may recover from an operation, but will die a few months later of cancer of the peritoneum or other organs.

The course of development of cystic cancer is exceedingly rapid, and the limit of life much shorter than in any other form of ovarian disease.

TREATMENT.—If the cancerous development is such that no doubt as to its presence can exist, there can be no hope from surgical interference. If, however, there is doubt upon the subject, the best plan is to resort to an operation at once, hoping that the cancerous disease may still be localized, and no adhesions formed with the neighboring parts. In such cases Dr. Goodell recommends that the pedicle be burned in preference to using the ligature. Where an operation is not considered justifiable the fluid may be drawn off by the aspirator when necessary, but this should be done as seldom as possible, as even aspiration may tend to hasten the cancerous disease.

CYSTO-FIBROMA OR CYSTO-SARCOMA.—There is no practical distinction between these two varieties of ovarian disease. Some pathologists mention only fibroma, and do not refer to sarcoma, while others describe sarcoma and say nothing about fibroma. Scanzoni defines the fibroma to be "tumors formed by cellular

tissue," and sarcoma, "tumors composed of cellular tissue in the middle of which are formed more or less considerable cavities." Rindfleisch says, "I cannot separate the fibromas from the sarcomas," and farther on says, "we distinguish three principal varieties of sarcoma, namely: round-celled sarcoma, spindle-celled sarcoma, and fibroma." Certain it is that there are no external signs by which the two varieties may be distinguished from each other.

These tumors are of slow growth, but sometimes, especially if sarcomatous, they attain an immense size. Their history is that of a cystic and fibrous growth combined, the preponderance of either the fluid or solid elements giving to the tumor its characteristics. In tumors in which the solid matter preponderates it is sometimes difficult to distinguish it from a solid tumor. So, also, if the fluid predominates, it is difficult to distinguish it from a true ovarian cyst.

Cases where the tumor grows to a very large size are usually sarcoma. The more the sarcomatous condition is present, the nearer do the symptoms approach those of malignancy, and the more rapidly fatal are the results. Dr. Ludlam gives the following differential parallel between the more important symptoms of cysto-sarcoma and cysto-carcinoma (1):—

OVARIAN CYSTO-SARCOMA.

The rounded outline of the tumor.

The tumor is not especially sensitive.

There is almost always a history of menorrhagia.

Almost never a pronounced ascites, or any dropsy of the feet.

The pulse is not habitually rapid.

There is no peculiar cachexia.

The solid portion of the tumor develops slowly.

OVARIAN CYSTO-CARCINOMA.

The surface of the tumor is irregular and nodulated.

It is almost always tender and sensitive.

Menorrhagia is exceptional.

Ascites and anasarca are the rule, and not the exception.

The pulse is like that of phthisis.

In a confirmed case the cachexia is always present.

The more malignant the solid growth, the more rapid its development.

The treatment consists usually in the removal of the growth. The operation is more dangerous than in uncomplicated ovarian cysts, owing to the greater danger of adhesions and the semi-malignancy of the tumor. Sometimes it is better to allow the patient to wear an abdominal bandage, and endeavor to relieve the symptoms by the use of the indicated remedy, than to assume the risks of an operation. If, however, the symptoms become grave, ovariectomy should be performed without delay.

DERMOID CYSTS.—This term is applied to cystic growths of the ovary, which contain not only a gelatinous fluid similar to that

1) Arndt's System of Medicine, Vol. II, p. 872.

found in other forms of ovarian cyst, but which contain also the elements of embryonic development, such as teeth, hair, bone, nerve matter, muscle, cholesterine and sebaceous matter, the whole being enclosed in a wall composed of an outer or fibrous coat and an inner one composed of true skin. They are always congenital, but may not noticeably develop until after puberty.

FIG. 182.—Dermoid cyst of right ovary containing hair and sebaceous matter.

They are unilocular, involve but one ovary, and may form on the surface, or within the substance of the ovary. They rarely exceed the size of an orange. They were formerly supposed

FIG. 183.—A bone resembling the lower jaw; *d*, taken from a dermoid cyst of the left ovary. It contained an incisor (*a*), a cuspid (*b*), four molars in a row, and an isolated one with three roots (*c*).

to be the result of an imperfect ovarian pregnancy, but as dermoid cysts have been found in other parts of the body, including the male testes, this theory has long since been exploded. The view of the origin of these cysts now generally received is, that they are congenital, and due to a displacement of the external layer of the blastoderm. From this layer the epidermis and other structures

are developed, and it is supposed that a portion of it becomes included in the part of the middle layer from which the ovary is formed, and forms the rudiments of cysts of a dermoid character.

Dermoid cysts frequently remain stationary in their congenital state, and are never discovered, or are discovered by accident. Sometimes they undergo rapid development, but usually their growth is slow. Sometimes they inflame and suppurate, forming an abscess which may discharge into the peritoneum with fatal consequences, or, more often, into the rectum or bladder, the solid contents being thus evacuated. Occasionally they ulcerate into the vagina, or through the abdominal wall. In such cases a cure may not result, the suppuration continuing, with hectic fever, exhaustion and death.

The diagnosis from an ordinary cyst cannot be established until after incision, as their mode of development and their consistency may be the same.

The treatment is removal by ovariectomy in case the disturbance created by the tumor requires it; otherwise they should not be interfered with.

CHAPTER XLI.

TRUE CYSTS OF THE OVARY.

VARIETIES AND PATHOLOGY.

HAVING briefly disposed of the rarer forms and complications of cystic growths, it now remains to notice the most frequent and most important of all cystic developments, the uncomplicated or true ovarian cyst. In addition to the clinical division of ovarian

FIG. 184.—Ovary with Dropsical Follicles (Natural size.) *a, b*, three large cysts; *c, d, e*, Oberfläche, surface of the ovary. *Durchschnitt*, section. *Fransen*, fimbriæ.

cystic growths already mentioned, two varieties of true cysts may be clearly distinguished: (1) Dropsy of the Graafian follicles or hydrops follicularis, and (2) Cystoma.

HYDROPS FOLLICULARIS.—This is the least important form of cystic degeneration. (Fig. 184.) According to Schroeder, (1) they represent a so-called retention cyst, and are to be considered in the same group with tubal dropsy, hematocele, etc. They are generally small, not larger than a cherry, and hence often remain undetected during life. They may occur singly, or exist in great numbers. In such instances a cluster of cysts, often forming a tumor as large as a foetal head, is found, which on section presents a multilocular cystic appearance. It is supposed that they owe their origin to an abnormal thickness of the walls of the follicles, or other causes which may hinder the rupture of the follicles. The presence of these cysts before puberty, and even in new-born children, however, demonstrates the fact that a failure on the part of the follicle to rupture is not the sole cause, but that the growth may be due in adults, as well as in children, to a hypersecretion of the follicular fluid. According to Rokitansky a follicular cyst may arise from a ruptured Graafian follicle or corpus luteum, the kernel of the latter becoming a cyst. Follicular cysts have usually thick walls, of a structure similar to that of the Graafian follicle; a fibrous coat, derived from the stroma of the ovary, an inner coat on which the epithelial lining is placed, corresponding to the tunica propria of the follicle. Their contents are a clear fluid, and the ovum has, in some instances, been found in such cysts.

CYSTOMA.—This is the most important variety of all cystic growths, for the reason that it is of most frequent occurrence. Fortunately, too, it is most often susceptible of relief by surgical measures. The histogenesis of cystomata is not well understood even at this day, and a great variety of opinions exist among pathologists as to the origin of ovarian cysts. For this reason the literature upon the subject is exceedingly confusing, especially to the beginner. I shall, therefore, endeavor to give, in as concise a manner as possible, the generally accepted views as to the origin of ovarian cysts, considering, as I do, that any attempt to enumerate and discuss the various alleged sources of cystic degeneration would be confusing, and of no practical benefit.

Waldeyer classifies ovarian cysts proper into two varieties, viz.: Cystoma ovarii proliferum glandulare, and (2) Cystoma ovarii proliferum papillare. He considers that both of these varieties are developed from the processes of epithelium, known as *Pflüger's ducts*. They arise, therefore, from the same source as the Graafian follicles, the latter not normally developing, or else the follicle is converted into a cystoma by repeated proliferation of the epithelium of its inner surface. This growth by proliferation of the interior of the cyst gives the basis for the above classification into the glandular and papillary varieties.

1) Ziemssen, Vol. X, p. 362.

In the glandular form, sections through the cyst-wall everywhere exhibit small, simple, tubular epithelial pits (almost always cylinder-epithelium) in the substance of the wall, which present the character of a glandular formation. The mouths of these tubes soon become stopped up by tough secretions, and then, almost exactly as other "retention-cysts" form, they become first distended pouches, and then small sacs. Upon the interior of the walls of these sacs new depressions form, which in their turn deepen and form pouches and cysts, and so on. Thus a honeycomb appearance is produced. In the papillary cystoma the proliferation of the connective tissue of the cyst-wall is the main feature. From their inner surface numerous ramifying, shaggy, highly vascular vegetations sprout. Sometimes these are circumscribed, growing only within a certain limit; sometimes they increase incredibly, filling the whole sac. These two varieties may combine more or less, and thus give rise to many diverse forms.

Ovarian cysts are closely related to the pure adenoma, and many authors insist that all ovarian tumors are more or less adenomatous, but according to Waldeyer the large cavities which are always present in ovarian cysts do not occur in adenoma, and for this reason he prefers to call them by the name of *myxoid cystoma*. "When of some duration, the secondary cysts cause the wall of the principal cyst to be thickened and prominent on the inner surface, while deposits are formed on the outer one. Adhesions between the cysts and the abdominal organs are not developed for a long time, on account of the cylindrical epithelium covering the outer surface of the cyst, but they are finally produced by its continued growth and friction. The latter destroys the epithelium, and adhesions are formed which unite the cysts to all adjacent organs" (1).

Firm and gradually increasing peritoneal exudates are deposited between the organ and tumor near the vessels, which serve to connect them.

The inner surface of a myxoid tumor may be said to present quite the appearance and behavior of an ordinary mucous membrane abundantly supplied with glands and vessels. Ovarian cysts may develop singly or by a number of cysts, though it is claimed that the appearance of single development is not real, but that on account of the number of cysts of all sizes in a common sac, they may have the appearance of a solid mass. Should it occur, however, that the fluid is contained within a single sac, it is known as a multilocular, or compound cyst—a proligerous cyst, or a polycystic tumor. I prefer the term unilocular to express the simple, or

1) Winckel, Op. Cit., p. 523.

essentially single cyst, and multilocular for the compound, or tumor formed from many cysts.

Ovarian cysts may consist of large unilocular or multilocular cysts, from the size of a man's head to that of the uterus at the ninth month of pregnancy, and containing from fifty to one hundred quarts of fluid. They may occur in one or both ovaries. According to Rindfleisch all cystic tumors are multilocular in the beginning, and become unilocular by fusion of adjacent cysts by the breaking down of the dividing septa, and by the further development of the cystic wall. The tumor is attached to the uterus by means of a pedicle, in which are to be found the ovarian ligament, the Fallopian tube, and the two folds of the broad ligament, with the intervening connective tissue, containing numerous vessels, which are sometimes very large. Occasionally there is no pedicle, the tumor being directly connected to and resting upon the uterus by a broad base. "The components of the cystoma are the main cystic walls, the secondary cysts, the proliferations of the inner and external surface, and the cystic contents, generally fluid.

"The main cystic wall, inclosing all the other structures, forms the external boundary of the tumor, and usually incloses a main cystic space, which has always been formed, perhaps, by a confluence of several smaller primary cysts, and from its wall stand most of the glandular and papillary vegetations, and it also conceals the principal mass of the contents. The older the cystoma, the larger in general becomes the principal cystic space, and finally the cystoma becomes unilocular, all the secondary cysts being blended with the chief cyst.

"The principal cystic walls, and the walls of the somewhat larger secondary cysts, consist of two layers, an external connective tissue stratum, rather dense, of parallel fibres, and a much thinner stratum, very well provided with cells and vessels, on which the epithelium immediately sits. The smaller cysts are surrounded only by the last mentioned stratum." (1)

The contents of ovarian cysts vary between a clear, albuminous serous fluid, and a thick gelatinous material. The specific gravity is usually about 1018 or 1020, but may be much lower. The most important chemical constituent is an albuminate termed by Eischwald colloid. He claims that this colloid material changes into muco-peptone, while the albuminates transuding from the blood are converted into albumino-peptone. Paralbumin is invariably present, which is proved by the fluid becoming cloudy when boiled with dilute acetic acid. When no paralbumin is present the solution above the sediment becomes clear mucin, being insoluble in dilute acetic acid. As paralbumin is found in ascitic fluid and

1) Emmett, Prin. & Pract. of Gynecology. p. 665.

in the urine, too much significance must not be attached to its presence. The invariable presence of albumin in ovarian fluid is of the utmost importance from a diagnostic standpoint, and while cases have been known in which heat and nitric acid failed to precipitate albumin, nevertheless it is usually considered that all true ovarian fluids contain albumin. Ovarian fluid does not give a flocculent precipitate, as ascitic fluid does.

The corpuscular elements of ovarian fluids are various. There may be oil globules, cholesterine crystals, blood, fresh or altered with large granular cells.

The presence of a pathognomonic ovarian cell has been advocated by Hughes, Bennett and Drysdale, which, according to Drysdale, "is generally round, delicate, transparent, and contains a number of granules, but no nucleus. Its size varies from $\frac{1}{2000}$ to $\frac{1}{3000}$ of an inch in diameter. That these cells are usually pathognomonic of ovarian cysts has not yet been verified.

Ovarian cysts are subject to retrograde metamorphosis, the method of which is described by Waldeyer as follows:—

1. The fatty degeneration of the epithelial cells and the cells of the connective tissue parietal stratum, which rarely appears to any great extent.

2. The sclerotic condensations of the connective tissue in the principal cystic walls.

3. The wasting away of the cysts, proceeding from the destruction of all the secondary cysts and the atrophy of the glandular formations of the inner cystic wall and its epithelium, with which ceases all power of proliferation, and all secretion of the cystoma, the latter then remaining stationary. This process, only observed in the glandular cystomata, is the consequence of the pressure that the constantly accumulating cystic contents exercise in a certain toughness and unyielding condition of the walls.

4. Hemorrhages in the interior take place pre-eminently in papillary cystomata from the very vascular papillary proliferations.

5. The acute purulent inflammations start from the inner parietal layer of the cystoma, which is well provided with cells. The abundance of the cells is then so increased that all the fibrous elements among them disappear, the vessels are dilated and contain colorless blood-corpuscles in large number. In places here and there, the epithelium in large tracts is detached from the wall of the cyst by the pus cells breaking through it; the pus pervades this epithelium and accumulates on its side, so that the epithelium is bathed by the pus on both sides. At the point where the epithelium is detached from its substratum vascular loops soon sprout up.

6. The spontaneous perforations of the cystic wall either

originate through extended fatty metamorphosis, or the cause is to be found in extensive papillary proliferations of suppurations, gangrenous disintegration.

To these should be added the process of calcification which sometimes takes place. This is usually slight in extent, but in exceptional cases may comprise the whole cyst, forming a bony capsule as thick as that of the human calvarium.

CHAPTER XLII.

ETIOLOGY, NATURAL HISTORY, AND SYMPTOMS OF OVARIAN CYSTS.

LITTLE is definitely known as to the cause of ovarian cysts. Some authors claim that they are always of congenital origin, as cysts have been repeatedly found during foetal life. As we have already seen, the congenital character of dermoid cysts has been pretty well established, and there is no reason why other cystic growths may not have a similar origin. If so, as a rule they do not begin to develop until after puberty, during the period of ovarian activity. A limited number of cases have been observed during childhood, the ratio of frequency increasing until it reaches its height between the thirtieth and the fortieth year, and then gradually decreasing. Cases are met with after the menopause, and occasionally at a late age. The exercise or non-exercise of the sexual functions has no influence whatever in the production of ovarian cysts. Heredity is supposed by some authors to be an important cause, but this has not been sufficiently verified for general acceptance. According to Thomas, (1) "nothing can with safety be assumed beyond this, that it is probable that those influences which keep up and intensify ovarian congestion and interfere with rupture of the follicles of DeGraaf, tend to produce cystic and follicular degeneration. Kiwisch, Rokitansky, and Rindfleisch, all agree in thinking it probable that inflammation affecting the wall of the vesicle has an influence on the production of the disease."

NATURAL HISTORY.—The natural course of an ovarian cyst is to grow rapidly, and, in about two years from the time of its discovery, to destroy life by exhaustion through the embarrassing pressure which it makes upon the organs of respiration, circulation and nutrition. In very rare instances ovarian cysts have for some unknown reason ceased to grow, and remained stationary for many years, but this is very exceptional. Unilocular cysts grow more slowly than multilocular cysts. The average time for the latter is about a year, and for the former from one and a half to two years from its discovery.

Dr. Peaslee (2) has conveniently divided the development of an ovarian tumor in the following manner:—

1) Diseases of Women, p. 673.

2) "Ovarian Tumors, their Pathology, Diagnosis, and Treatment, etc.," by E. Randolph Peaslee, M.D., LL.D.

“First stage. The cyst is still within the pelvis.”

“Second stage. The upper extremity of the tumor has risen out of the pelvis, and is extending to the level of the umbilicus.”

“Third stage includes the growth upward from the umbilicus to the epigastrium.”

“Fourth and last stage is that in which the growth of the tumor is such as to increase its prominence and circumference alone, it having risen in the preceding stage to its highest point.”

“It is also convenient to speak of the middle of the second stage, the tumor reaching half way from the symphysis pubis to the umbilicus, and the middle of the third stage, when it has attained to the point midway from the umbilicus to the ensiform cartilage.”

Cases of spontaneous disappearance of ovarian cysts are on record, but many authors believe it to be impossible for such a thing to occur, without surgical or accidental help.

Ascites may exist concurrently with an ovarian cyst, and this is more apt to be the case where the tumor is undergoing cancerous degeneration. Dr. Goodell (1) says that “this can usually be detected by deep palpation, when the cyst will be reached and recognized by the fingers; or by pressing lightly, and then more firmly during percussion, an upper and a lower stratum of fluctuation will be detected.”

Sometimes cysts become inflamed, and this may lead to the formation of pus, or the secretion of a foul fluid, or it may extend to the peritoneum, giving rise to a general peritonitis. If the former, the pus or fluids may become absorbed and a fatal pyæmia or septicæmia result, or by rupture of the cyst they may be discharged into the peritoneal cavity and set up a rapidly fatal peritonitis. Occasionally the pedicle becomes twisted, causing obstruction of the blood supply and preventing the return of the blood from the tumor. This may result in gangrene, or, less often, in a hemorrhage into the cyst, either of which will result fatally unless the tumor be promptly removed. Sometimes the twisting takes place very gradually, and when so the pedicle may gradually atrophy, allowing the tumor to finally become separated from its attachments and be free in the cavity of the abdomen.

Ulceration of the cyst wall may occur, and this, resulting in perforation, allow the cyst contents to be discharged into the peritoneal cavity, or into any organ to which the tumor may have become attached. In this way the cyst contents may escape through the intestines, the bladder, the vagina, or even through the Fallopian tubes and the uterus.

In some instances hemorrhage takes place within the sac. If

1) *Pepper's System of Medicine*, p. 306.

so, the tumor rapidly enlarges, there is great abdominal pain, and symptoms of loss of blood. Death may result within a few hours, from the hemorrhage directly, or later from septicæmia, the result of the decomposition of the now bloody fluid. In such cases the tumor should be removed at once, as the patient's only chance of life.

The course of an ovarian cyst is liable to be complicated by either of the following conditions:—Pregnancy; ascites; peritonitis; Bright's disease; gastritis; septicæmia; fecal impaction; diarrhea; hernia.

Thomas gives the following résumé of the methods by which ovarian cysts produce the usual fatal results when not interfered with by surgical means (1):—

1. "A cyst may rupture and produce peritonitis, either before or after suppurative inflammation of its walls.

2. "Inflammation of the cyst wall may result in the filling of the cyst with pus, which produces hectic and in time exhaustion and death.

3. "Fatal hemorrhage may occur in the cyst.

4. "Prolonged interference with the functions of nutrition and respiration may sap the powers of life.

5. "Death of the cyst may occur from twisting or rupture of the pedicle and cause septicæmia.

6. "A low grade of gastritis, pleuritis, or enteritis may produce exhaustion.

7. "Finally, from the combined depreciating influences of this condition, gradual or sudden prostration of strength may close the scene by death."

SYMPTOMS.—The symptoms of an ovarian cyst, especially in the first stage, are quite variable. Generally the symptoms during the first stage are so trivial that they do not receive the attention of the patient, and it is only after the second stage has set in that she becomes suspicious and consults a physician. Indeed, ovarian cysts are often well advanced in the third stage, especially in elderly women, before especial complaint is made, or it is thought necessary to seek professional advice. Menstrual irregularities are sometimes present during the first stage, but this is not the rule. If both ovaries are affected, there may be a suppression of the menses, though this is not invariable. On the other hand, when only one ovary is affected, alterations both in the character and amount of the menstrual discharge may be noticed, and the flow may be entirely suppressed. In such instances the condition is often mistaken for pregnancy, and a physician not consulted

1) Op. Cit., p. 677.

until the case is already in the fourth stage. Sometimes, though rarely, dysmenorrhea is a constant symptom. In fact, menstruation presents no pathognomonic symptoms dependent upon an ovarian cyst.

Frequently no symptoms whatever are manifest until the tumor becomes large enough to press upon the rectum and bladder, giving rise to constipation or dysuria, or both. The former does not always result from pressure, but sometimes arises from reflex causes, from lack of exercise, and sometimes because the patient avoids defecation on account of the pain produced from straining when the tumor is sensitive, or where pelvic peritonitis is present.

The patient may also complain of weight in the pelvis, pain in the back and abdomen, pain and lameness in the legs, weariness on slight exertion and coldness of the feet. The pain and lameness are most frequently confined to one leg.

As the tumor continues to enlarge and approaches the third stage, the patient begins to complain of a sense of distension, especially if she has not borne children, and the abdominal parietes do not readily yield to the expanding tumor. At the same time dyspnoea begins to show itself, the tumor having begun to encroach upon the diaphragm, compressing the lungs and displacing the heart, while oedema of the vulva and extremities, and other evidences of venous obstruction, are also manifest.

The appetite and digestion remain unimpaired during the early stages, yet the patient looks pale and careworn, and evidences of beginning malnutrition are already becoming manifest. Emaciation gradually sets in, and finally the *facies ovariana*, so-called, the characteristics of which are prominent cheek bones, sharp nose, clearly defined *alæ nasi*, firmly closed lips, corners of the mouth depressed, and furrows about the mouth and upon the forehead. Should inflammation set in, these symptoms are especially marked. Occasionally the usual mammary and gastric symptoms of pregnancy are present, but this is not common.

Sterility is usually, though not necessarily, present, conception having been known to occur when both ovaries were diseased, evidence that healthy follicles still remained. Sterility is not always due to the fact that the ovary is diseased, but sometimes results from pressure upon the tube, or uterine displacement, menstrual anomalies, etc.

Thomas (1) gives the following summary of the symptoms of an ovarian cyst from the commencement of its growth to its full development:—

1) Op. Cit., p. 682.

“Irritability of the bladder, dysmenorrhea, constipation, hemorrhoids, pelvic pains of neuralgic character, symptoms of pregnancy, scanty urinary secretion, intestinal and digestive disorder, deranged respiratory function, peculiar facies, emaciation, œdema, venous distension of surface, ascites, vomiting, diarrhea, cardiac irregularity, aphthous stomatitis, and hectic. In cases advanced in the last stage, all the last of these may show themselves, and in early cases all the first mentioned; but, in many instances, some of the most prominent of these signs are entirely wanting.”

CHAPTER XLIII.

DIAGNOSIS OF OVARIAN CYSTS.

THE objective symptoms or physical signs of ovarian cysts are by far the most important for diagnostic purposes. For this reason, and to avoid repetition, these will be considered under the head of diagnosis.

Too much care cannot be taken in making the examination for suspected ovarian cyst. While the majority of cases are comparatively easy of diagnosis, yet there are numerous exceptional cases, where the diagnosis is beset with difficulties, and humiliation may only be avoided by a thorough and careful exploration. When we realize that such blunders have been made by some of the most distinguished surgeons in the world, we can appreciate the importance of being able to distinguish an ovarian cyst from other tumors or other fluid collections in the abdominal cavity.

The methods of physical examination are:—inspection; mensuration; palpation; percussion; auscultation; vaginal and rectal touch; the chemical and microscopical examination of the cyst fluids; explorative incision.

The patient should be placed upon the back, the abdomen uncovered, all constriction removed from the waist, and the knees drawn up so as to relax the abdominal muscles. In case the patient, from nervousness or from a desire to mislead, persistently contracts the abdominal walls, it may be necessary to use an anæsthetic in order to produce complete relaxation.

If the tumor is in the first stage, still lying within the pelvis, neither inspection, palpation, percussion nor auscultation are of any avail, but a vaginal examination finds the cervix displaced to the side opposite that of the tumor, and through the fornix a tense, round, fluctuating mass is felt, projecting downward. Bi-manually the uterus is felt displaced to one side, and distinct from the tumor, which can usually be mapped out between the hands. Should the tumor lie posterior to the uterus, as is most often the case, bi-manual examination will reveal the uterus markedly displaced to the front, but normal in size, while bulging downward behind the cervix the round, globular, cystic ovary is found.

In the first stage an ovarian cyst is most liable to be mistaken for pelvic cellulitis, cyst of the broad ligament, hydrosalpinx,

tubal pregnancy, pelvic peritonitis, fibroid, retro-uterine hemothecoele, and fibro-cystic tumors of the uterus.

PELVIC CELLULITIS.—Here there is almost always a history of inflammation, following some probable cause—abortion or parturition. If the inflammation has gone on to suppuration, there will be rigors, etc. If cellulitic deposits have taken place they are always fixed, unless occurring within the broad ligaments, and they give no sense of fluctuation, except very feebly when purulent matter is present.

PELVIC PERITONITIS.—Here, too, there is a history of inflammation, and aspiration yields serum, and not ovarian fluid. The latter is the most important diagnostic feature, and where peritonitic adhesions are present it is almost invariably required.

CYSTS OF THE BROAD LIGAMENT.—These are not so rounded, and have very distinct fluctuation; their secretion is usually simple salt water, and when tapped they do not recur.

HYDROSALPINX.—This lies high in the pelvis, and instead of presenting a round, globular tumor, it is tortuous, and elongated from side to side.

TUBAL PREGNANCY.—The sac may be distinctly recognized as being to the side of the uterus, and frequently ballottement can be obtained as early as the second or third month. In very obscure cases a little fluid may be drawn off with the aspirator, but this must be done with great care.

RETRO-UTERINE HEMATOCELE.—If the history of sudden onset and excruciating pain are not sufficient, the finger will detect the cul-de-sac filled as with a fluid which had settled down into it, while cystic growth preserves its outline, which can be traced beyond the sac in which it rests.

FIBROID TUMORS OF THE UTERUS.—The tumor cannot be separated so as to become distinct from the uterus; it is more solid and mobile in character, and always more consentaneous with any movement of the uterus. The sound shows an increased depth of the uterus, and uterine hemorrhages are of more or less frequent occurrence.

FIBRO-CYSTIC TUMORS OF THE UTERUS.—These are most difficult to differentiate from an ovarian cyst, and indeed most authors consider the diagnosis impossible without an explorative incision. In all cases in which the ovarian tumor continues to retain its pelvic position, it is liable to give rise to pelvic inflammations which complicate the diagnosis, and render it necessary to aspirate before a positive opinion can be given. After the tumor is in the second or third stage, having reached the umbilicus or epigastrium, the subsequent physical signs are correspondingly more distinct and positive in their character.

On inspection the abdomen is seen to be greatly distended. The distension may be uniform but it is often more or less lateral, and there occurs but very little flattening out by the sagging of the fluid to the flanks, as in ascites, thus showing that the fluid is encysted. When there are but two or three large sacs, the lines which separate them may sometimes be easily recognized, and the sulci between the solid and the cystic portions are sometimes quite plainly marked. The superficial abdominal veins may be dilated, and *linea albicantes* are sometimes present.

Mensuration should be practised from the xiphoid cartilage to the umbilicus, and from the umbilicus to the anterior spinous processes of the ileum. If there be an ovarian cyst, this measurement will show a marked difference between the two sides if it is unilocular, and less difference if it is multilocular. The measurement should also be taken from the umbilicus to the upper margin of the symphysis pubis, and if this measurement exceeds that from the xiphoid cartilage to the umbilicus, and the tumor is fully developed, the tumor is uterine and not ovarian.

Palpation reveals a firm, dense, and sometimes angular or lobulated mass, which yields fluctuation. But the fluctuation is not of the soft, superficial character that we get in ascites, for it gives to the touch the sensation of a firm sac filled with fluid, thus rendering the fluctuation less distinct, and the mass more resisting. If the fluctuation be very obscure, the bi-manual, and the vaginal or rectal touch, are necessary to establish it.

Percussion yields dullness over the tumor, and in one flank, but at the flank where the tumor does not bulge it is clear and tympanitic, this condition remaining notwithstanding any change in posture the patient may assume. This shows that the fluid is encysted.

Auscultation is of little value, save that it serves to exclude pregnancy. Vaginal touch shows the uterus to be displaced to one side or forward, rarely retroverted, and never enlarged unless impregnated. At the same time the lower surface of the tumor may be felt, and obscure fluctuation elicited. Rectal touch may be accomplished with the index finger after first drawing down the uterus with a volsella. In this way the border of the uterus may be felt, and from its angle a tense band,—the pedicle of the tumor,—passing out to the cyst. This examination is more readily made in the genu-pectoral position. Winckel and others recommend the use of two fingers only, having abandoned Simon's method as somewhat dangerous, and because it furnishes less information than an examination by two fingers.

In obscure cases the nature of the cyst contents may be determined by drawing off a specimen by use of an aspirator or a small trocar, the use of the aspirator being much the safer method.

Should these methods not prove sufficient for diagnostic purposes, the last resort is an explorative incision, which is necessarily attended by some danger.

The conditions with which an ovarian cyst in its later stages, is most likely to be confounded are: Obesity; pregnancy and hydramnios; extra-uterine pregnancy; ascites; phantom tumor; encysted peritoneal dropsy; uterine fibroids, and fibro-cysts; par-ovarian tumors; renal tumors; floating kidney; distended bladder; pelvic hematocele; hypertrophy of the liver and spleen. Each of these conditions must be considered, and their presence either excluded, or established as a complication, before a positive diagnosis can be arrived at.

OBESITY.—This is sometimes mistaken for an ovarian cyst, but the accumulation of fat is never entirely confined to the abdomen, for the breasts, face and limbs partake of the general enlargement. When assuming the sitting posture the fat hangs in folds over the abdomen, and the umbilicus is indented, and not protuberant as in ovarian cyst. Usually the fat can be grasped in the hand and its superficial character determined.

PREGNANCY.—This condition is usually readily distinguished from an ovarian cyst, though this is not always the case, for the diagnosis is in some instances very difficult. Ordinarily the history of the case will be of great aid, but sometimes it is entirely misleading, either accidentally or intentionally, and the diagnosis must be based entirely upon the results of a physical examination. The gastric, mammary and nervous symptoms of pregnancy are of great importance, yet it should be remembered that these sometimes result from ovarian disease. Should the circumstances seem doubtful and the diagnosis difficult, there can be no necessity for operative procedures until time shall have so developed the condition that if pregnancy exists the foetal body and its movements may be detected by palpation, and the foetal heart-sounds and placental bruit be obtained by auscultation. The vagina is dark in color, the mucous secretion increased, and the cervix soft. The sound should not be employed. In case the child is dead, the history of the case, rectal exploration, and dilatation of the cervix, with subsequent digital examination, will usually be sufficient to establish the fact.

HYDRAMNIOS.—An undue accumulation of the amniotic fluid causes a pregnant uterus, when examined only through the abdomen, to resemble very closely a large unilocular cyst, but if the history of the case is carefully weighed, it is only in its too rapid increase, and in the undue preponderance of its fluid contents, that the uterine swelling differs from what is normal in pregnancy. The physical characters of the lower segment of the uterus are

those of advanced pregnancy, and the whole history points in the same direction. Here the patient is always of an hysterical temperament, and the great danger is that she may so closely imitate the symptoms of pregnancy as to sadly perplex the physician.

In phantom tumors all the usual results of auscultation and percussion in ovarian cysts are wanting, and frequently steady pressure during deep inspiration will cause the tumor to entirely disappear. In very doubtful cases an anæsthetic should be administered, which will allow a free bi-manual examination, and remove all possible doubts.

ASCITES.—In cases in which the abdomen is greatly distended there may be considerable difficulty in differentiating ovarian cysts from ascites. In ascites, however, there is always a history of some previous organic disease of either the heart, lungs, liver, kidneys or peritoneum. Usually, too, there is more or less œdema of the face and lower extremities, and the abdominal enlargement increases much more rapidly than in ovarian cysts. The most important diagnostic symptom is the tendency of the free ascitic fluid to go to the most dependent portions of the body, so that a change in position changes the location of the fluid, the position

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FIG. 185.—The shaded portion shows the dull area; left figure—ovarian tumor; right figure—ascites (Barnes).

of which can be readily ascertained by percussion. When the patient lies upon her back the intestines float to the surface and the fluid gravitates to the flanks, making them bulge, and percussion gives a tympanitic sound at the umbilicus, and a dull sound at the flanks; when on her left side the dullness is con-

finer to the left side, and when on her right the dullness is transferred to the right side, the opposite side giving a clear note. When sitting up, the upper limit of the dullness is curved, with the convexity downward. In ovarian cysts the contour of the tumor remains the same regardless of position, and likewise does percussion always yield about the same results. In doubtful cases some of the fluid may be drawn off by aspiration and examined, or the patient may be tapped, and then the solid contents of the cyst, if it be one, be readily grasped by the hand and its character and location ascertained.

ENCYSTED PERITONEAL DROPSY.—Here the previous history, as pointing to peritonitis, tuberculosis, or cancer, is of the greatest importance. “The physical signs of this limited dropsy are precisely the same as those of ovarian dropsy. But the former is always either traumatic or malignant, has no necessary connection, is almost always central from the first, grows more rapidly, is not usually accompanied by a marked emaciation and failure of the general health, and almost always disappears with one or two tapplings by the exploratory incision, or from a spontaneous rupture of the extemporized sac. Usually, but not invariably, the contained fluid is very thin and of a light color, with an absence of the physical qualities of the ovarian cyst-fluid. This is the kind of ‘ovarian tumor,’ which is sometimes cured by electricity, massage, or by internal medication, when, in reality, it is not an ovarian tumor at all, but a kind of sacculated dropsy that is common to men and women alike.” (1)

UTERINE FIBROIDS.—Usually there is but very little difficulty in differentiating between an ovarian cyst and a fibroid tumor of the uterus. If, however, the latter be large and of the soft variety, it may give an obscure sense of fluctuation that will prove misleading. But usually the well-defined outline of the fibroid, its firm, solid consistence, its intimate connection with the uterus, the increased depth of the latter, the frequent uterine hemorrhages, the uterine souffle, and the comparatively slow growth of a fibroid, are sufficient evidences of the character of the growth to make its diagnosis easy. If, however, the fibroid is of the sub-serous variety, with a pedicle, there may be greater difficulty; or, on the other hand, should an ovarian cyst have a close attachment to the uterus, the latter may become elongated, and also follow the movements communicated to the tumor.

UTERINE FIBRO-CYSTS.—A positive diagnosis between an ovarian cyst and a fibro-cystic tumor of the uterus is considered impossible, but fortunately the latter are of extremely rare occurrence. In uterine fibro-cysts the fluctuation is only partial, and

1) Ludlam. Arndt's System of Medicine, Vol. II, p. 353.

the continuance is variable; the rate of growth is slower, there is usually an intimate connection with the uterus, and the fluid drawn off quickly and spontaneously coagulates, which the fluid of an ovarian cyst never does.

RENAL TUMORS.—A renal cyst usually occupies the lumbar region, and as it extends downward and forward always pushes the intestines before it, and does not in any degree impinge upon the vaginal cavity. Its growth is generally slow, and usually associated with evidences of organic disease of the kidneys. Aspiration gives a clear limpid fluid, in which urea or uric acid are almost always present.

FLOATING KIDNEY.—These are attached so that they cannot be crowded low into the pelvis, as can an ovarian cyst of a like size. The floating kidney also retains its peculiar shape, and often during examination will slip from the fingers back to its normal position in the flank and thus elude further search.

DISTENDED BLADDER.—This may be recognized by its peculiar bulging form, and is of course readily emptied by the introduction of the catheter.

PELVIC HEMATOCELE.—The diagnosis here would only be difficult in the case of a small ovarian cyst, lying within the pelvis and complicated with inflammation, which has already been referred to.

HYPERTROPHY OF THE LIVER AND SPLEEN.—In each of these conditions the constitutional symptoms, or evidences of chronic disease, are important. So, also, in the fact of their location or point of development. They both grow from above downward, and their independence from the pelvic organs can be usually easily ascertained by a careful bi-manual or rectal examination.

ADHESIONS.—The diagnosis of adhesions is not considered of so much importance as formerly, but these may be especially serious if the attachments are to the bladder or to the tissues deep in Douglas' pouch, and ought to be diagnosticated in advance, though anything more than a general surmise is hardly possible.

Usually, however, if there are adhesions, there has been a history of inflammation, and the course of the tumor growth has been marked with more or less pain. If there has been no pain, and the tumor seems movable, and especially if its growth has been rapid, and it presents the appearance of a unilocular cyst, there are probably no adhesions, but there can be no positive certainty upon that point.

It is always desirable to find the length of the pedicle, but this cannot always be done. Thomas finds the following rule to be very valuable for this purpose:—"If the tumor be found far up, out of the pelvis, upon vaginal examination the pedicle cannot

be very short. If a tumor which is not very large be fixed in the pelvis so that it cannot be pushed out, the pedicle is probably a short one." (1)

Other rules have been laid down which are probably of more or less value in approximating the length of the pedicle, but I think the above is about the only rule that receives the practical attention of gynecologists.

1) Thomas, Op. Cit., p. 698.

CHAPTER XLIV.

TREATMENT OF OVARIAN CYSTIC TUMORS.

MEDICINAL. SURGICAL. TAPPING. INJECTION OF IODINE. DRAINAGE.
INCISION.

MEDICINAL TREATMENT.—While it is a well established fact, that a true ovarian cyst is not, as a rule, amenable to medical treatment, nevertheless homeopathic literature furnishes reports of several cases treated by intelligent representatives of homeopathy, wherein it is claimed that ovarian cysts have been cured solely by the administration of the indicated remedy. Dr. Ludlam, in his valuable article on Ovarian Tumors appearing in Arndt's System of Medicine, has carefully collected most of these reports, which I take the liberty of here reproducing:

“**APIS MELLIFICA.**—In a paper read before the Pennsylvania State Homeopathic Medical Society, Oct., 1877, Dr. H. N. Guernsey says: ‘In Raue’s *Annual Record* for 1870, page 70, is the first case on record, so far as I know, and it was a cure effected by myself nearly twenty years ago. This case came into my hands after it was pronounced by several of our best allopathic physicians and surgeons to be a well-developed instance of ovarian dropsy, which nothing but the knife would relieve. The fear of so formidable an operation induced her to seek my aid. The tumor was so large as to fill the entire abdominal cavity, rendering stooping impossible. There was also an anasarca condition of the cellular tissues throughout the whole body. The characteristic symptoms indicating the remedy were *pains like bee-stings* in the ovarian cyst, very scanty urine and no thirst. By administering *Apis mel.*, in strict conformity with our law of cure, in the course of ten months she was restored to perfect health. A few months after the cure she was found to be pregnant, and in due time gave birth to a healthy child.’

“Other cases believed to have been cured by the same remedy are reported by Dr. A. E. Small (Raue’s *Record*, 1873, p. 173); Dr. P. H. Hale (Raue’s *Record* for 1872, p. 173); Dr. A. M. Piersons (N. A. *Journal of Hom.*, xxi, p. 553); Dr. C. Wesselhoeft (*Hahnemanian Monthly*, ii, p. 184); Dr. J. H. Payne (*ibid.*, p. 50); and by Dr. William Tod Helmuth (*Trans. World’s Homeopathic Convention*, vol. ii, p. 675).

“**BELLADONNA.**—Dr. H. N. Guernsey (*Hahn. Monthly*, Dec., 1887,) says: ‘Another marked case comes to my mind, which I cured several years ago. The tumor was as large as the head of a new-born child at full term, situated in the right ovarian region, and was caused by falling over a wash-tub. There was pain at every menstrual period, terrible forcing and bearing down, as though everything would issue at the vulva. This case was cured perfectly and completely after six months, by *Belladonna* given at every menstrual period.’

“**CALCAREA CARBONICA.**—Dr. Charles Sumner (*Trans. N. Y. Hom. Med. Society*, vol. ix, p. 312) cites a cure with this remedy in the sixth potency, the patient having taken it for the space of one year; and Dr. Guernsey (*op. citat.*), another in which the *Calcarea carb.* was followed by *Sepia* with a perfect result.

“**COLOCYNTH.**—With his accustomed caution, the late Dr. Carroll Dunham (*N. England Med. Gazette*, vol. iv, p. 311) reports a case that dates to Oct. 10, 1864, as cured by this remedy. But the diagnosis was faulty, and he evidently felt it to be so, for he closes his report with the suggestive inquiry, ‘Was this really an ovarian tumor?’

“**GRAPHITES.**—Dr. R. E. Dudgeon (*British Journal of Homeopathy*, 1873, p. 187) reports a case of this kind cured by *Graphites*.

“**KALI BROMIDUM.**—Dr. Richard Hughes, in the same journal for 1872, p. 793, cites a cure of ovarian dropsy by this preparation of *Kali*. Afterward the abdomen seemed filled with fluid, which was entirely removed by *Apocynum*, *Arsenium*, and *Apis mellifica*. But the innocuous character of this fluid is pretty good proof that the case must either have been one of encysted peritoneal dropsy, or a cyst of the broad ligament, both of which have been many times mistaken for ovarian dropsy.

“**PLATINA.**—Much stress has been laid by some physicians upon Dr. Mercy B. Jackson’s reported cures with this remedy. The reader will find the three cases in the *North American Journal of Homeopathy* for Aug., 1873, at p. 90. The doctor does not claim that they were cases of ovarian dropsy, and evidently they were not.

“**PODOPHYLLUM PELTATUM.**—In the year 1857, and again in 1869, Dr. William Gallupe reported to the American Institute (*vide Trans.* for those years) the cure of two ovarian tumors, the first in the right side, and the second in the left one, in which the persistent use of this remedy seemed effectual.”

Dr. Ludlam then remarks that “Other cures of ovarian tumors by internal medication are reported in our periodical literature; but in most of them it is not stated whether the tumors were

cystic, solid, or composite; many of them were treated years ago, when the means of diagnosis were much less perfect than at the present time; and in many of them so much time was consumed in the treatment, and so many remedies were given, one after another, as to render them of little value. Perhaps the most remarkable cure of this kind is that furnished by Dr. J. G. Baldwin (*Helmuth's Surgery*, 3d edition, p. 919), in which the tumor occurred during two successive pregnancies, was thrice tapped, and finally disappeared under *Iodine*."

"The fact is, that whatever we may, and really do, accomplish in the treatment of ovarian enlargement from other causes than cystic degeneration, this special form of disease has not proved as amenable to internal medication as we could have desired. The therapeutics of genuine, unmistakable ovarian dropsy awaits development."

With this conclusion all unprejudiced persons will certainly agree.

SURGICAL TREATMENT.—The various methods for the surgical treatment of ovarian cysts may be classed as follows: Tapping; drainage; injection of Iodine; incision; ovariectomy.

TAPPING.—This may be considered a palliative treatment, and some authors hold that it should never be resorted to except when necessary to obtain fluid for diagnostic purposes. It cures parovarian cysts, as these are mere retention cysts. Ovarian cysts are not retention cysts, but have a proliferating lining membrane, for which reason tapping does not cure them. An additional reason against tapping is that it is a procedure by no means free from danger, even to life. This danger may arise from suppuration, sloughing of the cyst, opening of large vessels in the wall of the abdomen or tumor, with consequent hemorrhage, and acute peritonitis from escape of fluid into the abdominal cavity. These dangers may, in a great measure, be avoided by using a suitable aspirator with short needles of small calibre, and observing all antiseptic precautions, but inflammation may follow the use even of the smallest needle, which will compel an immediate resort to ovariectomy, and very greatly compromise the success of this radical operation.

Goodell gives the following instances in which tapping cannot be dispensed with (1):—

(1) "Many women with ovarian tumors, having heard of cases of abdominal effusion or of cyst in which tapping was followed by a cure, will not submit to the radical operation until repeated tappings have proved to them the futility of the trocar.

(2) "Cysts of the parovarium and of the broad ligament

1) *Pepper's System of Medicine*, Vol. IV, p. 309.

being often cured by the use of the trocar, it is proper to try the effect of one tapping in slow-growing, unilocular, thin-walled, and flaccid cysts, which thus exhibit the chief characteristics of these extra-ovarian cysts.

(3) "When an ovarian cyst develops during the latter months of pregnancy, it will often be best to resort to tapping in order to relieve the woman from the pressure of two growing organs and enable her to go to full term. Sometimes labor is made impossible by the presence of a cyst, which will then have to be emptied.

(4) "In very large tumors, which by pressure interfere with the functions of the kidneys, heart, and lungs, thereby causing albuminuria, œdema, or dyspnœa, tapping is a useful prelude to ovariectomy. By the relief from pressure afforded to these organs not only will the liability to shock be lessened, but also to hemorrhage, for vessels previously varicose will now contract to their natural calibre.

(5) "In cases of doubtful diagnosis, or in those in which from malignancy, from formidable adhesions, or from other circumstances, the radical operation is deemed impracticable, tapping in the first case may clear up the diagnosis, and in the latter ones will prolong the patient's life. But it must always be borne in mind that in a few weeks the fluid will reaccumulate, and the operation will have to be repeated, rapidly exhausting the patient by the drain on her system. It is well, therefore, to put off the first tapping as long as possible."

In the operation for tapping Dr. Emmett observes the following rules (1):—"The aspirator should be used, or a trocar longer than the one usually employed for ascites. It should always be done under the carbolic spray, or with the application of a solution of the bichloride of mercury [neither of which are considered necessary by most operators.—*Author*], and care should be taken to prevent the entrance of air into the sac. As a rule, I prefer to place the patient on a narrow couch, and tap while she lies on the side. With all other considerations equal, the median line, midway between the umbilicus and the pubes, is the safest point for making the puncture. Yet if it were ascertained that the main cyst presented to either side of the median line, I would puncture at the most advantageous point, out of reach of the bladder, colon, and stomach. Wherever the point selected, it should be where a marked dullness on percussion exists and extends for some distance around.

"Unless a very large trocar is used, it will not be necessary to make an incision through the skin, as is usually done on emptying the abdominal cavity, nor will a bandage be required.

1) Principles and Practice of Gynecology, p. 689.

“The requisite support and pressure must be kept up by the hands of an assistant, placed at some distance from and below the trocar. He should stand behind the patient and carefully steady her body as she is rolled over to empty the cyst. The operator should seize the relaxed tissues about the trocar between his thumb and second finger, and at an inch or more beyond the point of puncture. This is done to prevent the contents of the cyst from escaping into the abdominal cavity. The patient is then to be turned on the back, and the trocar removed while the tissues are still grasped. The exit of the instrument can be aided by placing the nail of the index finger which is disengaged, against the skin at the edge of the puncture. A small piece of adhesive plaster should be placed over the puncture, and as the relaxed walls are held together, by pressure made on each side with the flat of the hand, two broad strips of plaster should be applied from under the flank, obliquely across the abdomen, to the neighborhood of the false ribs on the opposite side. Unless it is determined to inject the cyst, the use of Dieulafoy's aspirator is far preferable for making the first evacuation. The advantage of this instrument is that it affords greater immunity from evil consequences if a large viscus or blood-vessel is injured, and also entails less danger from peritonitis and inflammation of the sac. When the contents of an ovarian tumor are too dense to pass through the largest cannula of the aspirator, and this is rare, the case will seldom prove a good one for tapping. We must not suppose the tumor to be a solid one, should no fluid escape, for it is immediately shown not to be solid if the cannula can be moved freely in every direction.”

Tapping is sometimes performed through the vagina, but it is not as safe as through the abdomen, the greatest danger being in the admission of air into the cyst, causing suppurative inflammation, with all its attendant evils. For this reason this mode of tapping should never be resorted to except in cases in which there are pelvic adhesions, or when the tumor is so small that it cannot be reached by the supra-pubic method. In such cases the aspirator should always be used.

DRAINAGE.—Drainage into the peritoneal cavity, or through the vagina, is sometimes practiced. The operation consists merely of abdominal or vaginal puncture, and the introduction and retention of a tube in the canal thus created by which the fluid passes out and injections can be thrown in. The abdominal method is so dangerous that it is not to be considered, and the vaginal should only be practiced in those cases in which the cyst is immovably fixed by adhesions. The thorough washing out of the sac is important to guard against blood-poisoning, and to lessen the amount of secretion from the lining membrane, thus preventing a serious

drain upon the patient's strength. The hot water employed should, from time to time, have added to it proper quantities of tincture of Iodine or Carbolic acid.

INJECTION OF IODINE.—The treatment of ovarian cysts by tapping, and the subsequent injections of Iodine into the sac, has been practiced and recommended by some gynecologists. One author of our own school says (1) that "*Iodine* injections have cured ninety-three per cent. of well selected cases, and about sixty-three per cent. of cases taken at random, polycysts included. Harm seems to have resulted in but six instances, though I have collected three hundred and eleven cases operated on by different gynecologists in this country, Germany, France and England. M. Boinet has done more than any other man to demonstrate the great advantage of this treatment. Out of these three hundred and eleven cases collected I find reported cures in one hundred and ninety-seven cases, or about sixty-three per cent., including favorable and unfavorable cases."

This being the case, it is strange that this method is not more widely adopted. In fact, it is seldom practiced, owing to the risks and uncertainty attending it. At best it is only applicable in those very rare cases where the tumor is large, unilocular and free from adhesions. When we remember that the diagnosis in such cases is always doubtful, and that in many instances such tumors are not ovarian, but parovarian, it is probable that the mere emptying of the cyst would do as much good without the possible attendant evils of the injection.

This fact is now admitted by Boinet, and by others, who, like him, were once most enthusiastic in the praise of this method of treatment.

The operation consists in emptying the cyst by aspiration, and then reversing the action of the instrument, throwing in from two to ten ounces of the officinal tincture of Iodine. Some use a trocar to empty the cyst, and then make the injection with a syringe, but this is a more dangerous method. Allen's surgical pump (Fig. 54) is decidedly the best instrument to use for this purpose.

After turning the patient from side to side and kneading the abdomen, that the tincture may come into contact with every portion of the secreting surface of the cyst, the fluid is pumped out. While the needle is being withdrawn, in order to prevent the escape of any of the irritating injection into the abdominal cavity, the thumb and finger are made to grasp the fold of the abdominal wall at the site of the puncture, and to press firmly down on the collapsed cyst-wall.

In some cases of a desperately bad character, according to

1) Eaton, Diseases of Women, p. 304.

Thomas, (1) "the multilocular nature of the sac renders tapping, drainage, and injection ineffectual for the accomplishment of cure, while extensive adhesions bind it to the abdominal walls so firmly that extirpation is inadvisable. Under such circumstances the operation of incision, which consists simply in laying open the tumor by cutting through the abdominal walls, may be resorted to."

1) *Diseases of Women*, p. 711.

CHAPTER XLV.

OVARIOTOMY.

OVARIOTOMY consists in the removal of the diseased ovaries, and may be performed either by vaginal or abdominal incision, but the former is very rarely employed, the latter being the usual method. The history of this important operation is so extensively mentioned in most text-books, that I will not occupy space to reproduce it further than to say that it was first performed in 1809, by Dr. Ephraim McDowell, of Kentucky, and notwithstanding the most violent opposition which it received from the profession, it has gradually grown in favor and is now regarded as a recognized acquisition to surgery, and though at all times formidable, it, nevertheless, offers a more favorable prognosis than most other capital operations.

In this connection I cannot resist offering a little advice to the many ambitious young men in the profession to-day, who are anxiously awaiting an opportunity to perform this apparently simple operation. The uncertainty of diagnosis, the probability of dangerous adhesions, or of cancerous degeneration, and the many serious forms of complication liable to arise after the operation, render it at all times, as I have before said, a formidable operation, and in the language of a distinguished gynecologist, "but few cases are exempt from difficulties, which can only be overcome by the largest experience, if at all." Ovariectomy should never be attempted by a surgeon who has not already acquired a large experience in capital surgery, and who is thus prepared for any critical emergency that may arise.

Ovariectomy should never be performed so long as the tumor does not create disturbances which make it necessary. As a rule it is confined exclusively to tumors of comparatively large size, and after the patient has commenced to emaciate and her health begun to fail; but tumors of small size may be removed if they cause much suffering.

When septic peritonitis sets in; when the contents of the sac become purulent, as they sometimes do, either spontaneously or after an unprotected tapping; when the cyst bursts and serious symptoms arise; when torsion of the pedicle occurs, or when a free hemorrhage into the sac takes place, the operation should be performed without delay. Neither old age nor pregnancy contra-

indicates ovariectomy, but it should not be performed when the tumor is malignant, and the disease has extended to the uterus, intestines, or peritoneum, and is no longer limited to the ovary. Neither is it admissible when grave, acute or chronic disease is present in any of the vital organs, such as cancer, phthisis, or Bright's disease. Dr. Ludlam (1) says "valvular lesions of the heart must be serious if they are allowed to stand in the way." He has several times successfully operated upon patients who were afflicted with valvular disease without any serious risk from this cause.

It should be remembered also that albuminuria is often due to the pressure of the tumor on the kidneys, and, unless it existed before the appearance of the tumor, or is positively known to be caused by Bright's disease, should not preclude the operation. Gastric ulcer or serious disease of the alimentary canal may contra-indicate the performance of ovariectomy. Patients suffering from extreme exhaustion, the result of the ovarian disease, are less likely than those who are in fair condition, to recover from the operation; nevertheless, it should be performed, for such cases are often saved, even though it would seem that they could not survive the anæsthesia. Dr. Ludlam very aptly remarks "that the rules governing the choice of suitable subjects for ovariectomy are not fixed and unvarying. For, not only have some of the most desperate and unpromising cases finally recovered from it, but the progress in abdominal surgery is such that the list of contra-indications for its employment is shrinking very rapidly. It will never be a safe operation when rashly or indiscriminately made, but in the hands of an experienced and responsible ovariectomist, its range of application and its rate of success are likely to increase."

VAGINAL OVARIOTOMY.—I will describe this method very briefly, as it is not of great importance. The patient having passed under the anæsthetic, she is placed in a semi-prone, or in the lithotomy position. Sims' speculum is passed, and the posterior vaginal wall behind the cervix is incised along the middle line. The tumor is then tapped with an aspirator, and drawn through the incision with the finger or curved forceps. The pedicle is then ligated with thin carbolized silk, threaded on a handled needle, and divided on the side of the ligature next to the tumor. A T-shaped drainage tube is then passed into the wound, which may be stitched around it, or left open. Should the temperature rise or the discharge become fetid, the wound should be daily irrigated with a weak solution of carbolic acid.

ABDOMINAL OVARIOTOMY.—Having decided upon this opera-

1) Arndt, Op. Cit., p. 361.

tion, the necessary preliminaries must receive careful attention. In order to secure a healthy action of the skin Dr. Emmett advises a steam or hot-water bath to be given several nights in succession before the operation. After the body has been well washed with soap, and dried, he advises that it be thoroughly rubbed by the hand smeared with vaseline. On the morning of the day set for the operation the patient should receive a copious enema of hot soap-suds, being at the time placed on her knees and elbows, as this position favors the more ready removal of flatus and hardened feces. The diet for several days before the operation should be nourishing, but simple, and easily digested. Dr. Peaslee recommends milk porridge chiefly, but it is probably better that the patient be allowed a little mutton or fowl. Breakfast should be eaten some three or four hours before the operation, and to avoid vomiting from the anæsthetic, should be very light, usually a piece of toast and a cup of tea or glass of milk, being all that it is best for the patient to take.

The patient should be clad in a warm flannel undergarment, long woolen stockings, her ordinary night-dress being slit down the front, above which she may wear a loose woolen jacket. The catheter should be used, if necessary, half an hour prior to the operation, and the upper part of the pubes should be shaved if the hair approaches the line of incision. The operation should be performed about noon, and the room selected should be airy and well lighted, and, if possible, have a southerly or westerly exposure. If possible, the carpet and all unnecessary furniture should have been removed the previous day, and the room well scrubbed and the spray from several quarts of a five per cent. solution of carbolic acid be used upon the floor and walls of the room, as well as upon the furniture.

At the time of the operation the room should show a temperature of 80 ° F., but no higher. The operation may be performed upon a common strong dressing table, well supplied with quilts or blankets which are covered by an india-rubber cloth. The bed which is to receive the patient should be in an adjoining room, and should, if possible, be provided with a hair mattress, the temperature of the room being kept, at least until several hours after the operation, at 80 ° F., but it may be lowered to 75 ° F., if the condition of the patient warrants it.

Before proceeding with the details of the operation I will say a word in regard to the use of the carbolic-acid spray, or Listerism. While there can be no question as to the value of this method in ordinary surgical procedures, yet it is quite unfortunate that, owing to the fact that the peritoneum readily absorbs the carbolic lotion, and thus frequently gives rise to serious toxic conditions,

it has been generally abandoned in intra-abdominal operations. But while this is true as regards the carbolic-acid spray, yet Listerism may be said to be employed in a more or less modified form by nearly all operators. The placing of the instruments in a tray of carbolized water, the washing of the hands in carbolized water, the previous sprinkling of the room with the same, are among the many antiseptic precautions usually adopted, and I think there is no doubt that all Listerian precautions should be observed except the spray. A perfect system of asepsis is absolutely required, and if this is faithfully carried out the spray can easily be dispensed with. Hart and Barbour remark that (1) "it is evident that ovariotomists must find some method which, while locally purifying the air, will yet be innocuous to the wound surface." This I feel that we already have by using a spray of peroxide of hydrogen. This agent is entirely innocuous, and at the same time is one of the best of germicides. Pean has used it for this purpose with entire satisfaction, but I know of no other operator of distinction who has followed his example. Dr. Emmett advises the use of a spray of clear water in the room in order to keep it in a moist condition. Were the peroxide of the hydrogen used instead of water, it would answer this purpose, and also that of a germicide at the same time, without causing any of the untoward symptoms either in patient or operator that so often arise from the use of carbolic acid. The only valid objection to the use of this agent in the form of a spray is that when exposed to the atmosphere it loses its excess of oxygen and therefore becomes inert so far as its germicidal qualities are concerned, and that, to accomplish this purpose, the spray must be directed into the abdominal cavity, which, however, could be done without annoyance or danger.

It is the custom of most operators to notify the family a few days before the operation that they must have in readiness the following articles: one yard of rubber plaster; two rolls of cotton wool, made aseptic by being baked in an oven just before the operation; two and a half yards of white flannel, for two binders; a pint of whiskey, with a cup, spoon and sugar; a nail-brush, basin and soap; a pin-cushion with large pins; a solid table, upon which to operate; a small stand for the spray apparatus, in case one is to be used; a small table for basin and sponges; two new tin basins and one tin cup; a new bucket, and several bottles for hot water; a small tub and a common bucket; a rubber cloth one and one-quarter yards square, with an oval hole in the center six inches wide and eight inches long; one clean blanket for the patient's lower extremities; a small table for instruments; a plentiful supply of clean towels, sheets, blankets and pillows, and an unlimited

1) *Manual of Gynecology*, p. 223.

supply of hot water. In addition the surgeon will require: anæsthetics; a 2 per cent. solution of carbolic acid for the instruments, and with which to wash the hands thoroughly; a spray-producer, if one is to be used; a porcelain or tin tray for instruments; ten fine surgeon sponges of different sizes; two long and flat sponges; antiseptic gauzes, and the following instruments:—ordinary knives; probe-pointed curved bistoury; one grooved director; scissors, straight and curved; dissecting and dressing forceps; tenacula; blunt hook; volsellum forceps; needle-holder; two dozen straight surgeon's needles; assorted needles of varying curves; two large needles for transfixing pedicle; aneurism needle; assorted carbolic silk; fine catgut for bleeding vessels; hypodermic syringe; two pairs Nelaton's cyst forceps; Well's trocar, with rubber tubing; clamp; Paquelin's cautery, or three cautery irons; drainage tubes; aspirator; wire ecraseur.

Of course all of these articles are never used in any one operation, but any one of them may be needed, and it is wise to have them in readiness. The number of articles in use during the operation, especially of sponges and artery forceps, should be carefully noted, and counted before the abdomen is closed, that none of them may be left within the abdominal cavity. It is important that the sponges be all new and carefully bleached with dilute muriatic acid, washed free of any particles of sand, and well carbolized. Dr. Emmett advises that the silk ligatures should be thoroughly boiled and placed in melted wax, then stripped of the superfluous wax by the fingers, and both stretched and twisted tighter while still warm. He also advises that they be soaked in a solution of bichloride of mercury—2 to 1000—for at least half an hour before use. These precautions are not, however, usually adopted by those who use the carbolized ligatures.

Four assistants are necessary. These and the surgeon should wash their hands, face and hair thoroughly with soap and carbolized water, and use the nailbrush with still stronger carbolized water. They should not have visited any cases of zymotic or contagious diseases on that morning, and their clothes should be scrupulously clean. Dr. Goodell advises, in order to ensure further protection, that each one should take off his coat, vest and neck-tie, if they are of material that cannot be washed. All bystanders, if any are allowed, should be made to conform to all these rules as near as possible. It is quite unfortunate that these important precautions are so often disregarded.

The following preliminary details are observed by Dr. Emmett (1): A warm blanket should be spread over the lower end of the table, with which to envelop the legs and feet of the

1) *Op. Cit.*, p. 718.

patient as they hang over to rest upon a chair. Her night-gown and undershirt should be rolled up to a point at which they cannot become soiled. A small pillow should be pushed under the middle of her back for support, and the other pillows so placed at an angle as to make her position comfortable. The operator will select the side of the patient on which he is to stand, according to the direction of the light, or as he may have a preference. His chief assistant will stand on the other side of the operating table opposite to him, ready to sponge when necessary. A third person may stand at the side of the chief assistant nearest the patient's head, for the purpose of keeping up steady pressure while the tumor is being emptied. This he does by applying his open hands flat on each side of the abdomen. Afterward he may be needed to assist the person giving ether, to look after the condition of the patient, and to give hypodermic injections of brandy, if they should be needed.

The person administering the anæsthetic should be particularly skilled therein, and so familiar with the operation that he may not neglect the anæsthesia in his anxiety to witness it. The operator should on no account have his attention called from the work before him. The fourth assistant is to have charge of and to wash the sponges.

As the patient passes under the influence of the ether, a folded napkin should be placed between her knees, the legs tied together and secured, if necessary, to the back of the chair, or, better, to the table. A large receptacle must be placed under the table for receiving the contents of the tumor, and alongside of it a small hand-bowl, to be used for the same purpose when more convenient. Near by must be placed a supply of towels and a basin of warm water, in which the operator may dip his hands from time to time, and it should be the duty of some one person to change frequently, during the operation, the water which has been carbolized or had the bichloride added.

Before beginning the operation it must be seen that in front of the fire, or heating apparatus, have been placed several blankets, a change of clothing for the patient in case she should need it, and a sufficient supply of hot water. The patient's bed must also be properly prepared. It should be narrow, that the patient may be readily reached; the mattress should be of hair, and hard, protected by a rubber sheet and covered by a blanket and cotton sheet for the patient to lie upon. Along the center of the bed a number of vessels of hot water, tightly corked, are to be placed, and covered up by the bed-clothing.

The patient is now placed upon her back on the table, the latter being so placed that her feet are toward the window. The

anæsthetic is then administered. Ether is the safest and is usually employed. The A C E mixture—One part alcohol, two parts chloroform, and three parts ether, is more rapid in its action, and is by some surgeons considered equally safe. “To prevent vomiting and to put the patient to sleep without a waste of ether or loss of time, Dr. Ludlam gives one ounce of whiskey in some water five minutes before the anæsthetic is given. I believe this to be an excellent practice, and, what is still better, is, to commence administering whiskey some three or four hours before the operation, giving the patient enough during that time to put her completely under its influence. If, then, she should show signs of consciousness during the operation, a very few whiffs of chloroform or ether are all that is required. Dr. Obetz, of the University of Michigan, employs this method, and considers that it has many advantages over any other in operations that may prove tedious.*

As soon as anæsthesia is complete, the rubber cloth with an oval opening is placed in its proper position, the edges being retained by adhesive plaster, the patient is tied as before mentioned, and the operator and his assistants take their respective positions. The abdominal incision should be made in the median line below the navel, and should be about three inches in length, its lower limit being about an inch above the symphysis. The tissues divided in their order are the skin, fat, linea alba, transversalis fascia, extra-peritoneal fat, each of which are successively laid open upon a grooved director, and finally the peritoneum, the recognition of which is all important. It has a dull, dark-blue appearance, while the wall of the tumor is of a whitish blue, or pearl-like color. The peritoneum should be carefully opened by catching it up with a pair of forceps, snipping a small opening for the introduction of the grooved director, and then dividing it with the scalpel or scissors. Before the opening of the peritoneal cavity, however, the operator should be careful that all bleeding has been stopped, either by torsion or the application of artery forceps, which may remain, or the vessels may be ligated with catgut.

The incision being now completed, the next point should be the completion of the diagnosis. The diagnosis, moreover, should now include not only the fact that we have an ovarian tumor to deal with, but a considerable knowledge of its attachments and adhesions. For this purpose a clean metallic bougie or sound may be passed over the surface of the tumor in all directions where it will go without obstacle, but the forefinger is the best of all

*) After the above was written I read the remarks upon this subject made by Dr. Link at the recent International Medical Congress. He said that he had used “alcohol as an anæsthetic in over a hundred cases, and never had a fatal result, while the anæsthesia was complete. The whiskey to be given in two ounce doses every two to five minutes, until a pint to one and a half pints have been taken, and the patient has become stupefied. Then about two drachms of chloroform are placed in the cone, and a few respirations put him to sleep.”

sounds. With this the operator can generally reach down in front to the lower end of the globular mass, and can even ascertain something of its attachments or pedicle, and feel the uterus and trace its fundus. Any slight adhesions to the abdominal wall or omentum, which are felt as thread-like bands, are easily torn off the tumor at this time, two, three or more fingers being used if necessary, but those which are firm and unyielding should be left until the cyst is partially drawn out from the abdomen.

The diagnosis being satisfactory, and it having been decided to proceed with the operation, the opening is carefully enlarged to from five to six inches or more, as necessity requires, a semi-solid tumor requiring a larger opening than one which is mere fluid in its nature. Sometimes it will already have been found that the sac is firmly adherent to the abdominal wall, and unless care is exercised this may not have been discovered until after part of the peritoneum has been stripped off under the impression that it is the sac wall, and much trouble will result therefrom, especially in the way of hemorrhage.

The next step is the evacuation of the cyst contents. This is accomplished by the use of a trocar and canula, Wells' trocar

FIG. 186.—Wells' Ovarian Trocar.

being most often used. This instrument, with its point projected, is plunged into the sac at a point free from blood-vessels, the shield being immediately pushed out to guard the point, and the fluid passes through the attached tubing to a pail placed below the table. Meanwhile an assistant keeps up steady pressure on the abdominal walls, in order to prevent the intestines from passing out. Should there prove to be more than one cyst they must each be treated in a similar manner. The cyst having been emptied, if there are no adhesions to prevent, it is drawn out from the abdomen by means of a pair of Nelaton's forceps, the assistant still keeping up pressure upon the abdominal walls. This much having been accomplished, the operator now has the cyst outside the abdomen, while the pedicle is at the incision.

It may happen, however, that the adhesions are so extensive that the sac cannot be drawn out. If this is the case, Dr. Emmett advises to tap the patient on her side, as first recommended by

Wells. As this question of the treatment of extensive and firm adhesions is of great importance, I prefer to quote at length from Dr. Emmett, than whom there can be no more reliable authority. He says (1): "The patient can be turned well over on the side, and

FIG. 187.—Emmett's Ovarian Trocar.

FIG. 188.—Nelaton's Forceps.

be thus held by the assistants, while the operator gradually draws out the sac by means of any strong forceps or volsella constructed for the purpose. A linen cloth must be placed under the tumor and over the lower edge of the wound, to receive any cystic fluid, which might by accident escape alongside of the cannula, otherwise it may enter the abdominal cavity. As the abdominal walls become more relaxed the upper edge of the incision should also be

1) *Op. Cit.*, p. 320.

covered by a linen cloth to protect the parts, and to keep the hand of the assistant from coming in direct contact with the intestines, which are liable to protrude.

“The most frequent seat of the adhesions is the abdominal walls and next the omentum covering the anterior surface of the cyst. They may be found in both places.

“Great care and skill are required to separate the adhesions between the tumor and the abdominal walls. This separation must be made, as has been stated, by tearing off the adhesions from the surface of the tumor, and never from the abdominal wall, as this would leave the muscular tissue exposed without any peritoneal covering, which would delay and complicate the progress of the operation. But when the adhesions are separated from the surface of the tumor, it rarely happens that any large blood-vessels are lacerated, and what capillaries are torn will promptly close up.

“If the omentum, as indicated by its appearance, is found to be adherent to the tumor at the abdominal opening, more care must be exercised in making traction, through fear of tearing the

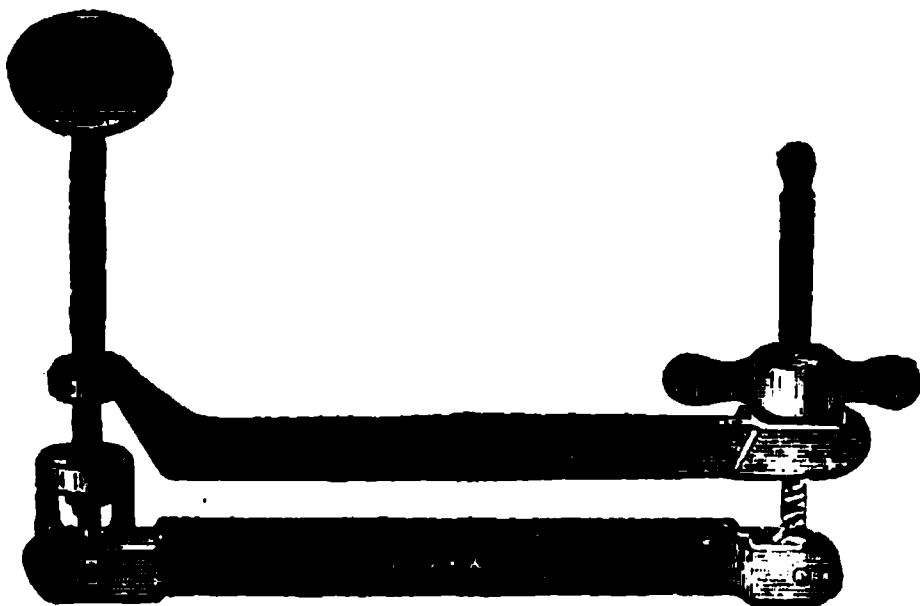


FIG. 189.—Wells' Ovarian Clamp.

connection of the omentum with the intestine beyond. It is not necessary to delay for the purpose of attempting to separate the omentum from the surface of the tumor, but just beyond the adhesion two ligatures may be placed an inch apart, around the mass, which may then be divided between the ligatures with a pair of scissors. This will prevent any bleeding from the tumor, and the ligature from the end attached to the omentum should be placed in charge of an assistant while the stump is temporarily returned to the abdominal cavity.

“Adhesions are sometimes formed with the lower surface of the liver, and to the stomach and small intestines. If these are carelessly broken up, the substance of the viscera may be torn, and fatal results follow. When slight they may be separated from the surface of the tumor; but the safest plan is to cut around the

adhesions so as to leave the adherent part of the cyst-wall intact, and then carefully strip off the portion of lining membrane. If a vessel is divided it must be secured with a fine silk ligature."

When the tumor has been thus sufficiently reduced in size to be drawn out of the abdominal cavity, it should be wrapped in a towel to preserve its warmth and circulation until the pedicle can

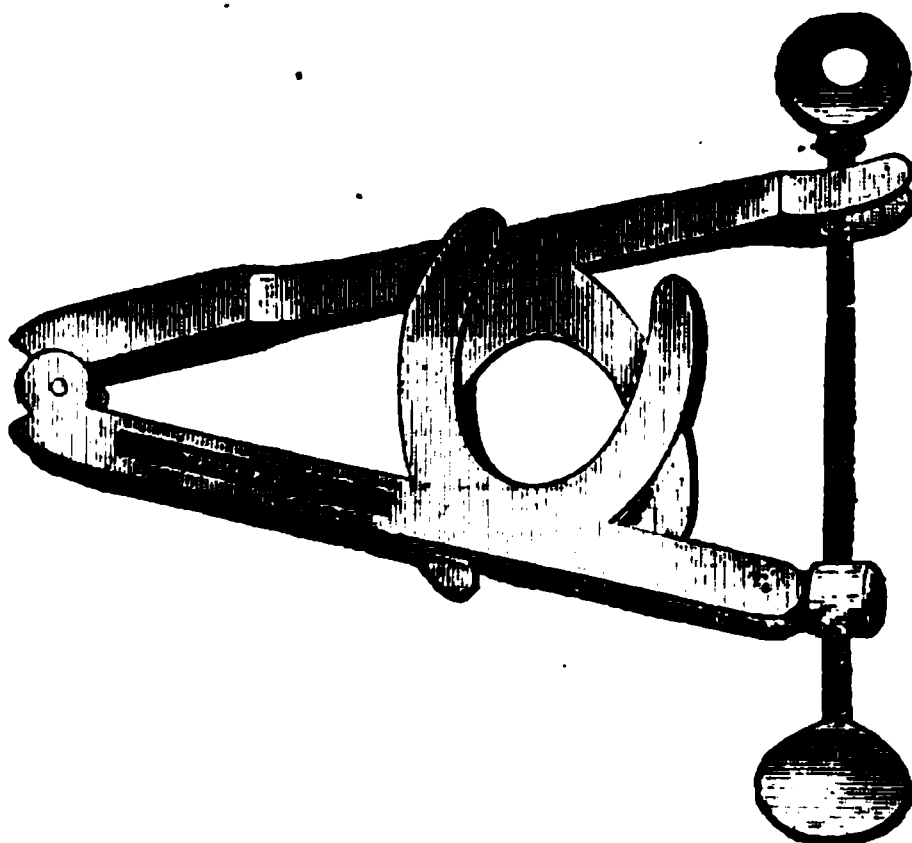


FIG. 190.—Thomas' Ovarian Clamp.

be divided. The patient is then to be turned on her back, the abdominal incision to be held open, so that the small intestines and the parts of the pedicle may be covered by pieces of linen cloth wrung out of warm water, to which carbolic acid has been added. This will protect the intestines from cold and from the continued

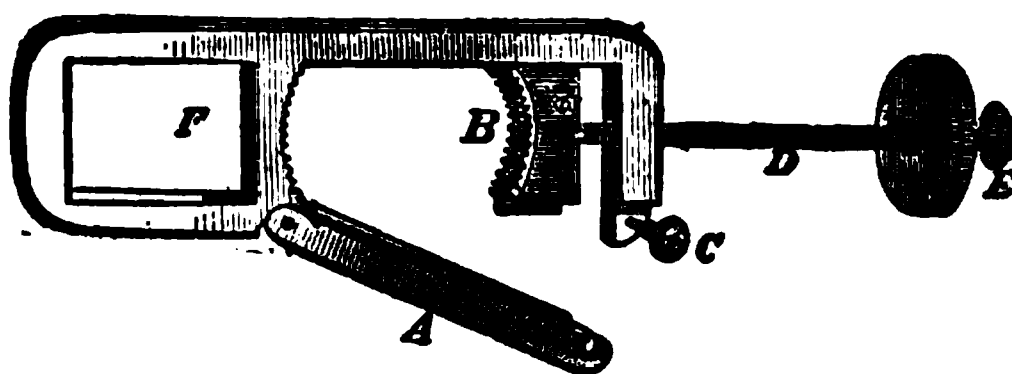


FIG. 191.—Dawson's Ovarian Clamp.

action of the spray, and will absorb any blood which may ooze from the walls, or from the pedicle after it has been divided.

The same method is equally desirable when there are no adhesions, but it is seldom practiced.

After the sac has been withdrawn, the next step is to secure the pedicle, which is one of the most important features of the operation. This may be done by the clamp, by the cautery, or by the ligature. The first is called the extra-peritoneal method; the others the intra-peritoneal. Until within a few years the clamp

was mostly used, but it is now almost abandoned, the ligature and dropping back of the pedicle being the favorite and probably the best method.

Actual cautery may be performed with cautery irons, or Paquelin's instrument, which is considered most desirable. By this method no foreign body is left in the abdominal cavity, except the charred portion of the pedicle. There are very many ovariologists, Keith among the number, who adopt this treatment. For the process a cautery clamp is required, with which the pedicle is seized, after which the cyst is cut off about an inch above the clamp. The cautery irons, or the Paquelin, are then passed firmly over the surface until the pedicle is seared flush

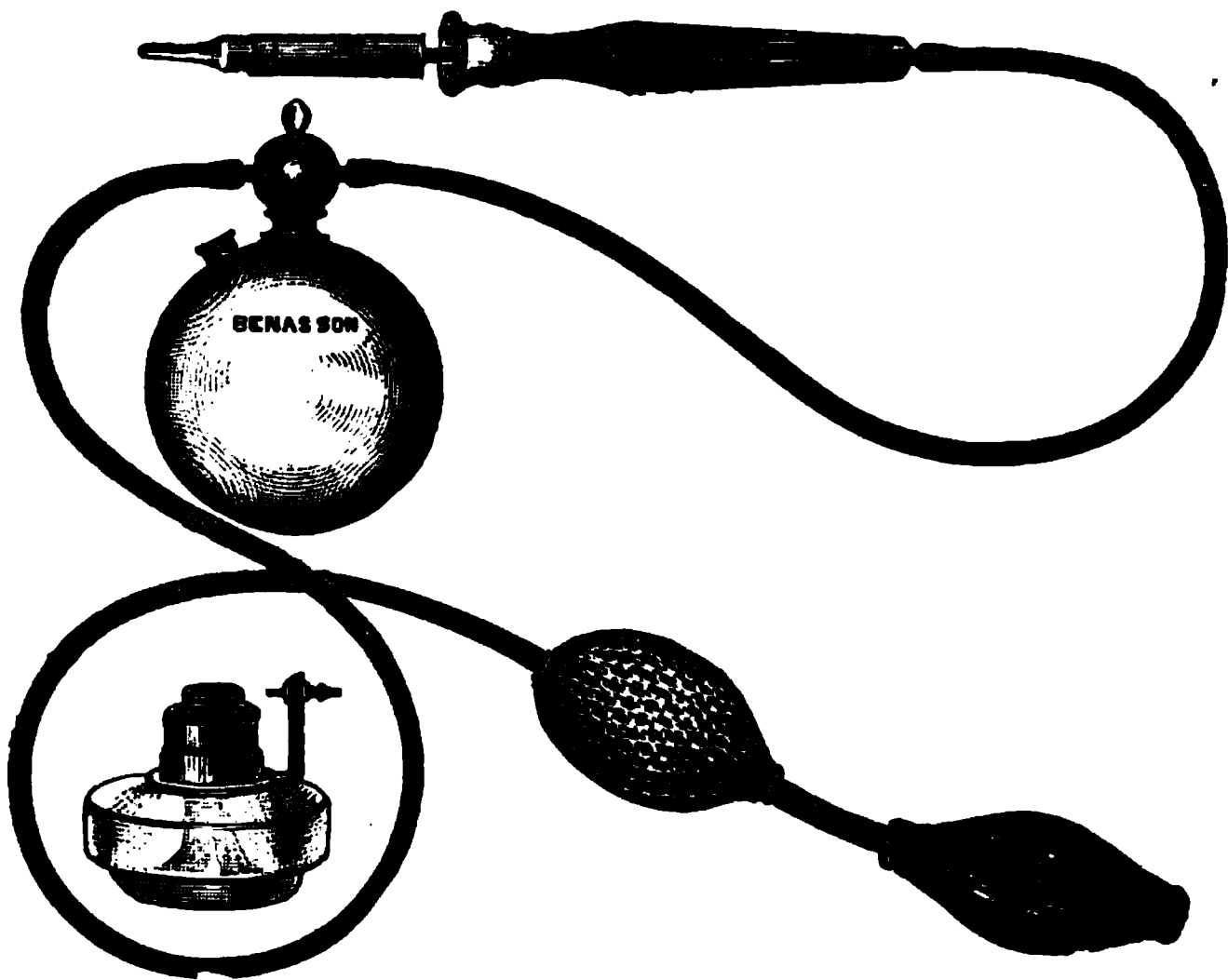


FIG. 192.—Paquelin's Thermo-Cautery.

with the clamp. The peritoneal toilet is then finished, after which the clamp is carefully unscrewed and removed, the pedicle being firmly held meanwhile with a pair of forceps, and if all is right it is dropped into the abdomen.

The ligature, however, is, as I have already remarked, the most popular and probably the best method of treatment. It should be made of thin carbolized silk. Some use silver or catgut, but the silver being inelastic cannot bind a shrinking pedicle, and the catgut is liable to slip or untie. The method usually employed is that given by Hart and Barbour (1): "A double silk ligature is threaded on a blunt needle. The pedicle is transfixed with this, and the ligature cut. Thus we have two ligatures through the

1) Op. Cit., p. 220.

pedicle; one is passed round the one half of the pedicle, the other round the other half. They may be made to interlace first so as to make a figure-of-eight. Each is tied firmly in a reef knot. The pedicle is then seized with Pean's forceps, one on each side below the ligature; the cyst is clipped off about half an inch on the cyst side of the ligature; as the pedicle is still held up by the forceps it can be carefully examined to see if any bleeding occurs. It should be noted whether the ligature splits the pedicle vertically, so as to cause bleeding, if so, the ends of the thread can be made to surround the whole pedicle below this. If there is no bleeding the ligature is cut short and the pedicle dropped into the pelvis. The raw end of the pedicle may be stitched with catgut to the broad ligament, so as to prevent its adhering to and constricting the intestine.

“When the pedicle is thick and fleshy it may require to be tied in three portions, as follows: Pass a double thread so that its shorter half will embrace only *one-third* of the pedicle; withdraw the needle, but keep it still running on the thread and use it to carry the longer half of the thread through a second point, so as to embrace the *middle third* of the pedicle; one portion of the longer half thus forms a loop round the middle third, while the other portion embraces the *other third* of the pedicle.” A careful examination of the other ovary is now made, and, if it is found to be diseased, it is ligatured and removed.

Next comes the peritoneal toilet, which also includes a careful search for any bleeding points that may have been left by the torn adhesions, and under no circumstances should the abdomen be closed until every vestige of hemorrhage or of its products has been removed. Dr. Ludlam, in order to more thoroughly secure the removal of blood and serum, is “in the habit of inverting the posterior cul-de-sac with the finger.” The cavity having been carefully mopped and thoroughly dried, a flat sponge, the full length of the incision, is laid over the intestinal contents and allowed to remain until the external sutures are placed, but not tightened; it is then carefully withdrawn.

After the sponges and instruments are all counted the wound is closed. For this purpose silver wire sutures are usually employed. Each needle is passed from within outward a quarter of an inch away from the peritoneal edge of the wound, and is made to emerge at the same distance from its cutaneous edge. Most surgeons pinch the peritoneum and skin together, so that the needle passes through them alone without including the recti muscles, which, if included, may give rise to abscesses in the track of the sutures. Dr. Goodell, however, considers that the observance of this rule may cause hernia in the track of the wound, so he includes

these muscles in the suture whenever they are exposed to view. Each suture should be about eight inches long, and they should be placed about half an inch apart, beginning at the upper end of the wound. All the sutures are passed before any of them are twisted, and the ends of the sutures on each side are raised together, which brings the edges of the wound together, and at the same time chases the air out of the abdominal cavity. These being held by an assistant, the surgeon rapidly tightens and twists each ligature. After all have been twisted, the free ends of each ligature are cut off about two inches from the knot, with a pair of scissors. Should there be any gaping points, superficial sutures are passed through the skin, bringing the edges of the wound into coaptation, but neither the deep nor superficial sutures should be drawn so tight as to cause inversion of the edges of the wound.

In ordinary cases no drainage is required, but when there have been extensive adhesions a glass drainage tube should be passed in at the lower angle of the wound and down into Douglas' cul-de-sac, before the lower sutures are twisted. The mouth of the tube should be closed with a sponge or absorbent cotton, which will take up the discharges; or, in severe septic cases, the fluid collected in the cavity may be pumped out through the tube with a syringe or aspirator; the cavity may, if deemed necessary, be washed out with antiseptic fluids. The tube may be arranged so that it will open upon the surface of the dressings, or it may be covered by the flannel bandage. The tube may usually be removed in about forty-eight hours, though it may be left longer if required. After its removal the opening in the wound is closed by twisting a wire suture which has been left loose for that purpose.

There are many methods for the dressing of the wound, but one of the most simple and effective is that practiced by Dr. Ludlam and most other homeopathic surgeons. It consists in applying strips of adhesive plaster across the abdomen, and then covering the wound with a compress of old linen that has been saturated with a "mixture of equal parts of the tincture of calendula, glycerine, and warm water." Some do not include the glycerine, but Dr. Ludlam thinks that "the glycerine keeps the parts moist and supple, excludes the air, and is an excellent antiseptic." Over this a flannel bandage is pinned. Spencer Wells uses for this purpose gauze saturated with a mixture of thymol and spermaceti, laid over the united wound. Then eight or ten folds are put over the first, and the whole supported with strips of adhesive plaster, over which is tightly fastened the flannel binder. In ordinary cases the dressings may be left untouched for eight or nine days. But should there be a rise in temperature it may be necessary to examine the wound, and of course if there is much discharge the

dressings will need frequent changing. In such cases Dr. Ludlam advises the dressings to be changed and the wound cleansed every alternate day. The operation being now completed, the patient is carefully placed in the bed which has been made warm and ready to receive her.

AFTER-TREATMENT.—To the general practitioner the after-treatment is of greater importance than the operation itself, as in a majority of cases, the surgeon having performed his task, leaves the responsibility of the subsequent care of the patient to the attending physician, and it is upon his judgment and skill in a great measure that the safety of the patient depends.

The first danger to contend with may be a collapse from nervous shock. There is always more or less shock following the operation, but this usually disappears after the patient is covered with warm blankets and hot bottles have been applied to the feet, limbs and body. If, however, there is a tendency to collapse, and the patient shows no signs of reaction, she should be given small doses of brandy or whiskey, or, what may be found still better, the subcutaneous injection of twenty minims of sulphuric ether. If there is vomiting from the anæsthetic, the patient should be encouraged to take deep inspirations, as this will help rid the blood of the anæsthetic. Arsenicum may also prove of benefit, but as a rule no remedies are required. If flatus becomes annoying, it may be usually got rid of by turning the patient on her side and inserting a flexible catheter high up in the rectum. The abdomen may, however, become so bloated that it will be necessary to loosen the bandages. The diet should for at least forty-eight hours be extremely light, a few teaspoonfuls of iced milk, or of peptonized beef, or a few sips of hot tea, are all that should be allowed, in order that vomiting may not be induced, and the collection of flatus be prevented. Hart and Barbour recommend that hot water “be given *ad libitum*, as it helps the flatus.” After the second day the food may be cautiously increased, first allowing larger quantities of milk and peptonized beef, or beef tea. At the end of a week the bowels should be opened by an enema, but a cathartic should never be employed. The urine should be drawn off about every three hours at first, but after the first day every six hours will answer.

The first serious complication may be secondary hemorrhage, which, if from the pedicle or the adhesions, may make it necessary to open the wound and ligate the bleeding vessels.

The next complication, which is to be anticipated and guarded against, if possible, is that of high temperature. The thermometer should be used every morning and night, and should it mark a temperature of 101 ° F. or over, the patient should be placed upon

the indicated remedy at once—probably Aconite, or, possibly, Arsenicum, Belladonna, or Veratrum viride, and at the same time an ice cap should be applied to the patient's head. The ice cap is allowed to remain so long as it feels comfortable and does not make the patient chilly, and at the same time the face and extremities should be frequently sponged with tepid water. It is usually considered, and with truth, that if the temperature can be reduced, there is less danger of septicæmia, but reducing the temperature does not remove the blood poison, it is simply an evidence that the blood and serum which have oozed into the abdomen have been absorbed without septic poisoning having occurred. But as Dr. Emmett well says, (1) "The reduction of temperature is all very well, as far as it goes, but the patient will die in spite of it, unless the decomposing bloody serum is removed from the peritoneal cavity."

In order to accomplish this, when drainage has been employed the peritoneal cavity may be washed out with a very weak solution of carbolic acid, by means of a syringe or aspirator. It may become necessary to reopen the abdomen in order to do this. Opium and other narcotics have no place either here or elsewhere in the treatment of these cases, and should never be employed.

The chief indications for the remedies most often called for in septicæmia are as follows:—

ARNICA.—Stupor; indifference; unconsciousness; when spoken to answers correctly, but unconsciousness and delirium return at once; tympanitic distension of the abdomen; involuntary stools; petechiæ; ecchymosis.

ARSENICUM.—Great restlessness and anxiety; face sunken and pale, sometimes covered with a cold sweat; tongue dry and brown; nausea; burning pains in abdomen, which is much distended; involuntary, dark-colored, offensive stools; pulse quick, weak and irregular; great prostration.

BAPTISIA.—Great confusion of mind; face dark red, with a besotted expression; sordes on the teeth and lips; tongue dry, and brown down the center; abdomen distended; tightness in the chest; all discharges and exhalations very fetid.

Also consult Carbolic acid, Carbo veg., Chininum sulph., Crota-lus, Eucalyptus, Hepar sulph., Lachesis, Mercurius, Muriatic acid, Phosphorus, Rhus tox.

1) Op. Cit., p. 787.

CHAPTER XLVI.

PELVIC PERITONITIS.

SYNONYMS.—Pelvi-peritonitis; perimetritis; pelveo-peritonitis.

DEFINITION.—An inflammation of the peritoneum, which is limited to that portion covering the female pelvic viscera.

In considering the nature of pelvic inflammations we are at once embarrassed by the evident confusion that exists among all authors as to the relation which exists between peritonitis and cellulitis. Some regard them as positively distinct affections; others consider that the one cannot and does not exist without the other, and therefore regard them as practically one affection. Thomas, having carefully studied this point, has arrived at the following conclusions (1), which agree with those of other recent authors:—

1. “Peri-uterine cellulitis is rare in the non-pregnant woman, while pelvic peritonitis is exceedingly common.

2. “A very large proportion of the cases now regarded as instances of cellulitis are really those of pelvic peritonitis.

3. “The two affections are entirely distinct from each other, and should not be confounded simply because they often complicate each other. They may be compared to serous and parenchymatous inflammation of the lungs—pleurisy and pneumonia. Like them, they are separate and distinct; like them, they affect different kinds of structure, and, like them, they generally complicate each other.

4. “They may usually be differentiated from each other, and a neglect of the effort at such thorough diagnosis is as reprehensible as a similar want of care in determining between pericarditis and endocarditis.”

Schröder (2) is of the opinion that cellulitis is a connective-tissue phlegmon, which is due to an infection with septic material; hence, that it is common in the puerperal state, but at other times is tolerably rare, and that perimetritis is a partial peritonitis, which may be, and frequently is, induced by the most diverse causes.

PATHOLOGY.—The disease may be described, like other peritoneal inflammations, as having three stages. During the stage of congestion there is simply engorgement and turgescence of the

1) Diseases of Women, p. 466.

2) Ziemssen, Vol. X, p. 445.

vessels, producing redness, dryness and pain. The second stage is that of plastic exudation, in which plastic lymph collects on the surface of the peritoneum, and serous or sero-purulent fluid is poured into its most dependent parts. After this has taken place the sensation to the touch is likened by Thomas (1) to that as if a fluid mixture of plaster-of-paris had been poured in, around, among and over the organs of reproduction as they lie "in an atmosphere of cellular tissue," and afterward becoming solid. "The uterus, which is generally much displaced, is immovable, and all its appendages appear fixed by some solid surrounding element."

In the third stage the fluid, if serous, is absorbed; if purulent, discharged, and the exuded lymph undergoes organization and subsequent contraction. This binds the uterus, its appendages, and some of the intestines together in a mass, which yields all the physical signs of a tumor.

ETIOLOGY.—Pelvic peritonitis may be caused by—

(1) *Pelvic Cellulitis*.—The intimate association of these diseases has already been mentioned. The pelvic peritoneum and cellular tissue are adjacent and intimately connected with one another in their vascular, nervous, and, especially, in their lymphatic supply, so that we can readily understand how an inflammation affecting the one may easily involve the other.

(2) *Endometritis, ovaritis or salpingitis* may also cause pelvic peritonitis by extension, and the latter by emptying its accumulated pus into the peritoneal cavity.

(3) *Parturition and abortion*.—Cellulitis is the form of pelvic inflammation usually following these states, a septic condition being present, but pelvic peritonitis may occur in the same manner, and may also be caused by injury during labor.

(4) *Gonorrhea*.—This is a common cause of pelvic peritonitis. The inflammation results from actual spread of the gonorrheal virus, or it may be sympathetic, like orchitis in the male. In the former case the purulent infection probably passes along the Fallopian tubes and out at the fimbriated end, setting up a severe peritonitis. According to Noeggerrath, (2) a very common cause of pelvic peritonitis is what he is pleased to call a latent gonorrhea in the male. He believes that the disease, once contracted, is probably never entirely eradicated, but that it always exists in a latent form, and that it is capable of producing a specific inflammation of the pelvic peritoneum years after an apparent cure had been effected.

(5) *Escape of fluids into the peritoneum* is a frequent cause. This may occur by the rupture of a cyst or an abscess, or by an

1) Op. Cit., p. 471.

2) "Latent Gonorrhea, etc." Transactions American Gynecological Society, Vol. 1, p. 268.

intra-peritoneal hemorrhage, or from regurgitation of menstrual fluid through a too patulous Fallopian tube. It not infrequently occurs from intra-uterine injections. I once saw a case where death resulted from a peritonitis which was set up by an intra-uterine injection of the chloride of chromium.

(6) *Menstruation*.—It may easily be understood how the congestion of menstruation may sometimes cause peritonitis.

(7) *Traumatic Influences*.—Pelvic peritonitis is occasionally, though rarely, caused by blows upon the abdomen or other accidental wounds, the most frequent traumatic cause being in connection with surgical operations, or from instrumental manipulations in the use of the sound, or the introduction of intra-uterine pessaries, sponge tents and the like. Excessive coitus has been named as a traumatic cause, but it is probable that in such cases other causes, as gonorrheal infection, for instance, have much to do with producing the disease. A most prolific cause is induced abortion. It might be said that there is scarcely any affection of the internal genital organs which does not to some extent involve the pelvic peritoneum, and secondary pelvic peritonitis is, therefore, a very common affection.

(8) *Tuberculous or cancerous* disease of the pelvic organs is almost always complicated by more or less pelvic peritonitis.

SYMPTOMS.—These may belong either to the acute or chronic variety, and subjectively they differ but little from the symptoms of other acute or chronic forms of pelvic inflammation. In the acute form we find full, rapid, bounding pulse, increased temperature, rigors, and severe shooting pains.

Physical examination reveals great tenderness of the lower part of the abdomen, and the abdominal muscles, apart from the patient's volition, resist pressure. She lies usually upon her back with both legs drawn up. The vagina feels hot and tender to the touch, and pulsating vessels may be felt in the fornices. After exudation is present, we may, according to Hart and Barbour, (1) "feel one or the other of the following conditions:—

1. "A flat, hard, non-bulging condition of the fornices round the cervix, which is not displaced to one or other side, but is immobile. The usual simile, and a very good one, is that it feels as if plaster-of-paris had been poured into the pelvis.

2. "An indistinct fullness high up in the pelvis. This is from free serous exudation.

3. "A bulging tumor behind the uterus, displacing it to the front; or a tense fluid laterally, apparently in the site of the broad ligament. The former is due to encysted serous effusion in the pouch of Douglas, the latter to encysted serous fluid behind the

1) *Manual of Gynecology*, p. 154.

broad ligament, displacing it forward. As a general rule, these effusions are high in the pelvis, and symmetrical. Sometimes the bulging retro-uterine tumor feels nodulated after a time; this is from extension of the inflammatory condition into the subjacent connective tissue."

In *chronic pelvic peritonitis* the subjective symptoms are more obscure, being chiefly backache and sideache, and pain and discomfort in the region of the bladder. In addition there is leucorrhea, disordered menstruation and sterility. Pain on vaginal examination or coitus is a marked symptom. The pain of chronic pelvic peritonitis is attended with but a very slight increase in temperature and acceleration of the pulse, being often so slight as not to be noticed. Frequently there is nausea and vomiting, and sometimes frequent and painful urination.

As a rule, physical examination reveals a very similar condition to that found in the acute form. There is thickening in the fornices, fixation and induration behind the uterus, the latter being usually markedly anteverted, though it may be retroverted and bound down by adhesions, in which the appendages are also included, being, as it were, glued together in the post-uterine space.

The acute variety in its severest form, especially if of septic origin, may end fatally in a few hours, or may gradually pass, with frequent sub-acute exacerbations, into the chronic form. The latter, therefore, may occur as a sequel to the acute form, or may slowly develop primarily, and is almost indefinite in its duration, owing to the constant tendency to relapse.

DIAGNOSIS.—The diagnosis of acute pelvic peritonitis is comparatively easy, as the tenderness on pressure, which is either diffused over the lower portion of the abdomen or confined to one spot, constitutes a sure sign of inflammation of the peritoneum. Yet the condition may be mistaken for either pelvic cellulitis, acute metritis, ovaritis or salpingitis, and also for recent pelvic hematocele.

Acute ovarian or Fallopian inflammation can be distinguished from peritonitis only by the very distinct lateral localization of the pain and tenderness in the former condition. The occurrence of exudation in peritonitis also serves as a distinguishing feature, by revealing the wide extent of surface involved.

Acute corporeal metritis is a rare affection. "If it forms a part of a general septic poisoning, some peritonitis will invariably accompany it; if it is traumatic, the history of the injury and the clearly definable uterine site of the pain and tenderness, as ascertained bi-manually, will guide us to the right diagnosis.

"The differentiation of pelvic peritonitis from pelvic cellulitis in this early stage, is often impossible; but the following symptoms or signs will afford a strong clue:—

1. "The formation of a distinctly resisting swelling in the pelvis, at a very early period, is in favor of cellulitis, especially if the tumor is not behind the uterus.

2. "The pain on pressure in peritonitis is chiefly above the pelvic brim, and diffused, while in cellulitis it is chiefly within the pelvis, and in some one direction, more frequently in that of one iliac fossa.

3. "The symptoms of nausea, vomiting, small wiry pulse, and tympanitis are very common in peritonitis, while in cellulitis they are usually absent" (1).

Recent hematocele never shows inflammatory symptoms at first. There is acute and severe pain, but the rise in temperature and the excessive tenderness on pressure are absent. Some connection with the menstrual period, or with suppressed or overprofuse menstruation, is also generally found in hematocele. In fact, although it is in practice too often mistaken for peritonitis, this should never occur if the case is seen within a few hours.

In chronic pelvic peritonitis the diagnosis depends almost entirely upon the physical signs. When the exudation is behind the uterus, and especially if it has bound the organ in a retroverted position, or incarcerated a foreign body, it is almost absolutely certain that agglutination is due to peritoneal exudation. This exudation is, as a rule, not so extensive as that which occurs in pelvic cellulitis, and if a tumor is present—which is uncommon—its location is different. When a tumor is present, as the result of pelvic inflammation, I think that it may be safely ascribed to connective-tissue inflammation rather than to peritoneal. On the other hand, when there is simply agglutination, and where the effusion seems thin and spread out, the organs and ligaments rigid and thickened, instead of a somewhat circumscribed tumor, the disease may be ascribed to peritonitis rather than cellulitis (2).

A retroverted or retroflexed uterus presents a freely movable tumor in the posterior cul-de-sac, and the sound reveals the backward course of the uterine canal. Bi-manual examination also reveals the absence of the fundus in its normal location. Sometimes a retroflexed uterus becomes secondarily involved in pelvic exudation, and fixed in its abnormal site, while the globular fundus is merged in more or less of lateral hardness; but even then, careful bi-manual examination, or probing of the uterine cavity, will place the uterine position beyond doubt, while the fixation and extended outline of the mass will often be made clear by the history of the intercurrent inflammatory symptoms.

Fecal impaction may be mistaken for peritonitis, but the

1) Thorburn, Diseases of Women, American Edition, p. 488.

2) Baer, Pepper's System of Medicine, p. 231.

position of the fecal mass, the absence of a history of inflammation, and the independence and mobility of the uterus, will decide, or, at least, lead to a rectal examination.

Fibroid tumors sometimes require differentiation from pelvic peritonitis. They are usually more or less spherical in form, and are firmly attached to the uterus, but, unless very large or impacted, they do not fix the uterus in place. The absence of a history of inflammation, the direction and depth of the uterine canal, and the more frequent presence of hemorrhage with fibroids, usually render the diagnosis comparatively easy. The presence of a carcinomatous mass in the pelvic cavity closely simulates the solid exudation of peritonitis, but the rapid growth, often without inflammatory symptoms, the cachexia and the tendency to œdema and ascites will usually remove all doubts as to the cancerous nature of the growth.

PROGNOSIS.—The prognosis as to life is usually favorable. If the inflammation becomes general, and is septic or gonorrheal in its origin, then the prognosis is very grave.

Sterility often results from the permanent displacement of the uterus and its appendages. Abscesses are liable to form, and should these discharge into other organs, death may result. At the best, and where the symptoms do not become serious, there are such frequent recurrences, and the patient is so distressed from the uterine displacement produced by the adhesions, that life is made miserable, and only becomes in a degree comfortable after the menopause.

TREATMENT.—This is practically the same, either from a medical or surgical standpoint, as the treatment of pelvic cellulitis, to which the reader is referred.

CHAPTER XLVII.

PELVIC CELLULITIS.

SYNONYMS.—Parametritis, Peri-uterine cellulitis, Paracolpitis, Pelvic phlegmon.

DEFINITION.—An inflammation of the cellular connective tissue of the pelvis.

It is claimed by Emmett (1) that “Pelvic cellulitis is by far the most important disease with which woman is afflicted,” and that physicians fail to recognize it when circumscribed, “or do not appreciate its importance if by accident it is detected.” “A great advance in the treatment of the diseases of women will be made whenever practitioners become so impressed with the significance of cellulitis as to apprehend its existence in every case. The successful operator in this branch of surgery will always be on the lookout for the existence of cellulitis, and take measures to guard against its occurrence.”

PATHOLOGY.—This disease not only affects the connective tissue which surrounds the vaginal vault and cervix, but it is also found in the utero sacral and broad ligaments, for within the peritoneal folds of these ligaments there exists considerable cellular tissue. Under the inflammatory influences the connective tissue becomes sodden or gelatinous, and is abundantly infiltrated with small cells. The disease may extend from the broad ligaments to the bones of the pelvis, along the round ligaments, behind the peritoneum, toward the kidneys, in short, in all the directions taken by puerperal parametritis. We thus find this yellowish gelatinous infiltrate in the form of large or small tumors, small band-like cords, or delicate strands in all portions of the pelvic cavity where connective tissue exists (2).

Cellulitis is generally found with greatest frequency, and in greatest severity, in those parts where cellular tissue most abounds, and where it is most liable to be injured. In cases of lacerated cervix the inflammation is almost always worse on the side on which the laceration is situated. The most common site of this process is at one side of the cervix uteri, from which it extends between the layers of the corresponding broad ligament. Hence a common diagnostic mark of cellulitis is its uni-lateral character. Both

1) Op. Cit., p. 241.

2) Winckel, Diseases of Women, p. 607.

sides may, however, be similarly and simultaneously affected. Or, the attack may originate in, or extend to, the tissue between the bladder and uterus, or behind, between the layers of the utero-sacral ligaments. The cicatrization of the utero-sacral ligaments which results from cellulitis produces increased ante flexion of the uterus, and thus becomes one of the most common causes of dysmenorrhea and sterility.

Pelvic cellulitis may be divided into three stages. The first stage is that of congestion, giving the signs of pain, heat and swelling. The second stage is that of effusion, liquor sanguinis being poured into the tissues, causing hardness and tension. The third stage is that of suppuration, the whole course of the disease resembling that of an ordinary boil or abscess.

ETIOLOGY.—The most important, and by far the most frequent, cause of pelvic cellulitis is parturition or abortion. It should be noted that the disease never occurs before puberty, and rarely before abortion or parturition have prepared the way, if, indeed, they have not acted as a direct exciting cause. This is explained by Dr. Baer, who says (1) “This is easily understood when we remember how compactly bound together are these ligamentous folds, and how small the cellular tissue spaces are before impregnation, when compared with the condition of the parts after the function of gestation has been performed. Even were no accident to occur to interfere with the perfect involution of the parts which enter into the process of the expulsion of the product of conception, the tissues would probably always remain more vulnerable than before the gestation has occurred. But when the retrograde change which is necessary to perfect involution is retarded, a condition of relaxation and looseness of the parts results which increases manifold the liability to the affection. The blood-vessels and lymphatics remain large, and the connective-tissue cells are not only larger in size, but a cell proliferation is probably induced as a result of the increased amount of blood supply.”

In parturient women the great cause of pelvic cellulitis is septic matter absorbed by the lymphatics from the torn perineum, vagina or cervix. We may, for instance, have the cervix torn vertically at one side, and septic matter deposited there often speedily spreads by means of the lymphatic vessels. Then again, when the puerperal state exists, it constitutes a predisposing cause, so that exposure to cold, fatigue, over-exertion, or direct injury will more easily induce pelvic inflammation. Abortion, whether accidental or induced, is a most prolific cause, because, according to Dr. Baer, it is so often followed by endometritis, which is frequently the starting point of pelvic cellulitis.

1) *Op. Cit.*, p. 209.

Pelvic cellulitis may occur in non-puerperal cases, and when it does, the causes are similar to those already given under pelvic peritonitis, especially traumatic influences, ovaritis and exposure during menstruation. It is generally conceded that this disease is usually secondary to ovarian or uterine inflammation, whether puerperal or non-puerperal.

SYMPTOMS.—In recording the symptoms and course of pelvic cellulitis I shall follow Emmett, whose description is exceptionally graphic and complete. He says (1):—

“An attack of cellulitis is generally ushered in by a chill of more or less severity, followed by fever. But, at times, the attack begins with pain and fever without any perceptible chill. Again, extensive cellulitis is occasionally detected by accident, after having become already well advanced without causing any particular disturbance. Fever and pain about the lower portion of the abdomen are, however, the usual symptoms. The pulse will become greatly increased in rapidity, and the thermometer, if placed in either the axilla or mouth, will indicate a marked elevation in temperature. As the temperature is usually at least one degree higher in the vagina, during an attack of local inflammation, it is better for the sake of greater accuracy to make the observation in the vagina. Unless the inflammation is very extensive, so as to involve the peritoneum, the symptoms are not always well marked, nor do they follow closely any rule.

“If the attack is a severe one, there will be tenderness over the lower portion of the abdomen on either side, or over the whole surface. The abdomen will be found tympanitic and intolerant to pressure, while the patient will lie on her back with the knees well drawn up, and unable to extend them without increasing the pain. These symptoms are found accompanying an attack of hysteria, and this disturbance of the nervous system may even be an additional complication with the cellulitis. But the elevation of temperature, as indicated by the thermometer, is an important diagnostic sign, since there is no such change in hysteria alone.

“Nausea may exist early in the disease, but vomiting, with the ejection of bile in large quantities, indicates a serious extent of the disease and general peritonitis. As the cellulitis becomes overshadowed by the extension of the peritonitis, the extent of the latter will be indicated by the expression of the patient's face, and by the tone of her voice. The features will become more pinched, and the voice will resemble closely the characteristic of the collapse of cholera. When the peritonitis has been unusually rapid in its progress, it seems to sear its way as the white heat of a cautery does, and to destroy sensation. I have seen such inflam-

1) *Op. Cit.*, p. 252.

mations begin as a cellulitis, extend to the peritoneum, and, becoming general, run their course in a few hours, without the slightest local suffering or even pain on pressure. From the shock and rapid depression to the life force, the temperature will fall even below the normal standard, while the pulse will rapidly increase, since the heart, from a loss of power, is now obliged to make a greater number of contractions. That the temperature should go down as the pulse increases in frequency is apparently an anomaly. The rule is, however, as applicable to all conditions of rapidly failing power. The explanation lies, at the beginning, in imperfect aeration of the blood in the lungs, from which the capillary circulation becomes diminished in proportion as the needed stimulus of oxygen is deficient. A depression in temperature on the surface would naturally follow, while the heart, although enfeebled, must increase its frequency of action to get rid of the accumulation of blood. Experience has taught that, in any acute disorder, it is the beginning of death when the temperature of the body falls to a point which is disproportionate to the extent of the disease, the pulse, at the same time, becoming rapidly and equally out of proportion. In such cases of peritonitis this is an infallible indication of the beginning of the end, notwithstanding the strength of the patient may yet seem fair, and other grave symptoms be absent.

“In other cases, after a certain interval, there will be a remission of fever, but never a marked intermission until the commencement of resolution or convalescence. The temperature will continue above the normal point in the vagina, although the heat of the skin may seem natural, while, toward the close of the day, there will always be a perceptible rise in the general temperature. The symptoms will be all marked as a rule just in proportion to the extent of the peritoneum involved, and, in extreme cases, the pelvic condition may be marked entirely by the symptoms of the general peritonitis. In fact, without the aid of a digital examination, the extent of the cellulitis would remain unknown.

“The first shock of the disease is spent on the nervous system, whether the exciting cause be blood-poisoning, extension of the inflammation over a greater area, or the sudden occurrence of cellulitis itself. We can only recognize the result of the shock by the chill, during which the blood flows from the surface to the internal organs, producing intense pelvic congestion. Nature's first effort to relieve this will be by the escape of the watery portions of the blood through the coats of these vessels, and the tissues become infiltrated with serum. Then reaction comes on, by which the circulation is partially restored, and the fever correspondingly subsides. If the finger be now introduced into the vagina, no hardening of the tissues will be detected, but the sensation of a

fullness and a boggy feeling will be appreciated, and there will be a marked elevation of temperature.

“As the disease advances, so as to involve the peritoneum, the uterus becomes fixed in its position, and the roof of the pelvis tightened, as I have described. With this process, plastic lymph is thrown out, opposing sides of the peritoneum adhere and inclose the inflammatory products. Then the finger in the vagina will be able to detect roughened surfaces, as if hard masses of some foreign substance had become inclosed within the pelvic tissues.

“When reaction occurs, if the circumstances are favorable, the œdema of the tissues rapidly disappears, and these hard masses melt away, as it were. The uterus soon becomes again movable, and the only product of the inflammation remaining afterward will be a band, formed from the shrinkage of the tissues which had been involved. Should the uterus or the intestines be bound down by adhesions, the former can be replaced by art, and the peristaltic action will in time liberate the latter. But the damage will be almost irreparable whenever the ovaries have been involved, or the broad ligaments, if of sufficient extent to include the Fallopian tubes. As the ovaries are stationary, they will remain buried in the lymph which has been thrown out, and, when this begins to undergo contraction, the supply of blood is diminished, so that they may become atrophied. Nerve-filaments are often involved in the mass and are compressed by the contraction, with the effect of causing ovarian neuralgia or reflex irritation elsewhere. To attacks of cellulitis, which may have produced but little disturbance at the time, can be traced the chief causes of sterility.

“The ovary may become covered in by a mass of lymph, as has been stated, so that the ova cannot escape from the Graafian follicles. The fimbriated extremity of the Fallopian tube may have been so bound down or displaced by adhesion as to be no longer able to grasp the ovary for the purpose of receiving the ovum as it escapes from the ovarian stroma. Or, some portion of the Fallopian tube may become obliterated by a band of adhesion. Moreover, these consequences are by no means dependent upon the apparent gravity of the attack.

“After the subsidence of an attack, if nature alone, or aided by art, is unable to remove the product of the inflammation, symptoms of blood-poisoning present themselves in consequence of the absorption of septic material into the general circulation, as if it were nature's last effort to restore the integrity of the parts. The patient now suffers from rigors, followed by fever; and there is but a slight remission of these symptoms at any time in the day. The encysted lymph and serum break down into pus, which, infiltrating the neighboring tissues, acts as a foreign sub-

stance, and sets up a fresh inflammation, causing their degeneration. A number of small accumulations of pus thus formed at length coalesce into one or more large abscesses. These accumulations of pus extend in the direction presenting the least resistance, and generally empty themselves unaided. The most frequent point of escape is into the posterior cul-de-sac of the vagina, or, if from either broad ligament, a little to one side of and posterior to the cervix. These abscesses rupture almost as often into the rectum, and with less frequency into the bladder. Occasionally the abscess may discharge into the intestines, in consequence of some adhesion, or it may follow the course of the psoas muscle and open into the groin. It is the least likely to rupture into the peritoneal cavity, since it requires so little irritation to produce adhesive inflammation of this membrane that it would be protected in advance.

“Should this accident occur, the shock would necessarily be great, fresh inflammation would be excited, and there could be no safety for the patient unless it proved the means by which the pus could again become encysted.

“In rare instances, the pus may pass from the pelvis through either sciatic foramen, and burrow under the glutei muscles, or in the neighborhood of the hip joint. In many instances the escape of pus will continue only for a limited time, and, as the point of rupture is generally at the most dependent portion, the abscess is kept empty, its cavity shrinks, the walls adhere, and the discharge gradually ceases. The symptoms of blood-poisoning rapidly disappear, and the restoration to health is unobstructed.

“Under other circumstances, the hectic fever and blood-poisoning increase, and the discharge becomes more abundant. This occurs when the walls of the abscess happen to be so thick that they cannot be brought into contact, so that its cavity cannot be reduced after the escape of its contents. The whole interior then becomes a pus-secreting surface, and the disease proves a serious hindrance to the recuperative powers. Under no other circumstances does a woman show to greater advantage her natural tenacity of life and powers of endurance.”

Dr. Emmett says he has seen “this drain kept up for two years, and with a degree of hectic and emaciation unequalled in the course of any other disease, and yet recovery take place.” He has met “with several instances where a collection of pus had become sacculated, and without producing any constitutional disturbance, had remained in this condition for years, as I had every reason to believe from the history of the cases. An accumulation of pus in the neighborhood of the uterus, with thickened inflamed tissues about it, has been frequently mistaken for a fibroid with a suppressed recent attack of cellulitis.”

DIAGNOSIS.—The following conditions are most likely to be mistaken for pelvic cellulitis:—

Uterine fibroids.—Here the diagnosis is usually easy, unless the tumor is inflamed, and lies low in the pelvis. Ordinarily the mode of inception of fibroids, their freedom from pain and tenderness, and their distinct connection with the uterus, will suffice to distinguish them from a cellulitic deposit, which is accompanied by directly the opposite conditions, and which has the appearance of firm attachment, like a bony growth, to the walls of the pelvis.

Hematocoele.—This condition occurs suddenly, and often with hemorrhage. The symptoms are especially violent, and the pallor, coldness and syncope show the loss of blood, while the tumor lies in Douglas's cul-de-sac pressing the uterus forward, while the exudation of peritonitis is usually to one side of the uterus. But the location of the tumor is not conclusive, the history of the case and the character of the tumor being the chief guide.

Extra-uterine pregnancy.—This may be mistaken for cellulitis, but the presence of some of the ordinary signs of pregnancy, and the gradual development and change in character of the tumor will usually clear up the diagnosis.

Ovarian and Parovarian cysts sometimes resemble a cellulitic exudation, but their higher position, their mobility, and their different consistence will usually serve to distinguish them. If, however, they are low down and confined in one position, and then become inflamed, the diagnosis will be difficult.

Pelvic Peritonitis.—Dr. Thorburn gives the following differential table between these two similar and often conflicting affections (1):—

PELVIC PERITONITIS.

1. *Causation.*—Many causes common to both. General shock, general septicæmia, and gonorrhea more frequent.

2. *Acute Symptoms.*—Temperature high in general septicæmia, lower in slighter forms. Pulse rapid. Pain severe, diffused, abdominal. Tenderness chiefly hypogastric, rarely lateral, vomiting and tympanitis common. Both thighs sometimes flexed.

3. *Local Swelling.*—Fluid, and almost indistinguishable at first. Site all around the uterus, but tending to distend Douglas' pouch symmetrically behind. Subsequent extension upward into peritoneal cavity.

PELVIC CELLULITIS.

1. *Causation.*—Local injuries, especially in labor, sepsis from local affections or surgical proceedings more common.

2. *Acute Symptoms.*—Temperature averages higher. Pulse varies. Pain often less. Tenderness chiefly pelvic, generally lateral. Vomiting and tympanitis absent. One thigh often flexed, afterward adducted or abducted.

3. *Local Swelling.*—Distinct intra-pelvic swelling almost from the first. Site varies, never symmetrical behind uterus, most often in one broad ligament, or at isolated points, e.g., behind bladder, in one utero-sacral ligament, or in pelvic glands. Extension occurs along course of connective tissues.

1) Diseases of Women, American Edition, 1887, p. 797.

4. *Uterus* fixed early in normal position or pushed forward.

5. *Cervix* may be normal, or apparently shortened behind or all round.

4. *Uterus* generally displaced laterally, often flexed, fixation sometimes less complete.

5. *Cervix* often apparently shortened at one side.

In addition to the points of differentiation given, I would call attention to the aggravation in peritonitis which usually occurs at each menstrual period, and to the fact that in the latter there is no distinct tumor in the beginning, but a hardening of the whole pelvic roof.

PROGNOSIS.—Pelvic cellulitis is always to be regarded as a serious disease, and the prognosis should be guarded as to a complete recovery. It may run a very acute course, and result in recovery by resolution or suppuration, or it may become chronic and be indefinitely prolonged. The tendency is to recovery; and comparatively few cases die, but the slow resolution of the products of inflammation, and the pathological conditions brought about by these deposits, often render the patient's life a burden to which death would be preferable. Cases occurring after parturition and those complicated with peritonitis offer the most unfavorable prognosis.

TREATMENT.—If called to an acute case during the first stage the patient should be placed in bed at once, and admonished to keep perfectly quiet. The indicated remedy—probably either Aconite, Belladonna, or Veratrum vir., should be prescribed, at the same time dry heat should be applied to the extremities, using, if possible, the hot-water bag, or bottles filled with hot water. Moist heat should then be applied to the abdomen, which is best done by the use of a linseed or cornmeal poultice, the moisture being retained by means of waxed paper or oiled silk. In addition to this treatment, especially if the symptoms are very severe, the hot water vaginal douche should be employed. This method was first practiced and advised by Emmett, who says “it is the only means we possess for aborting an attack of cellulitis, which it will do, if thoroughly employed at the beginning.”

There seems to me but one objection to the use of this method in the first stage of cellulitis, and that is the necessary disturbance and movement of the patient, who should be kept absolutely quiet. But this objection is apparently overcome in the good results that are claimed. According to Emmett, (1) “the injection should be continued literally *for hours*, if possible, and be repeated at short intervals.” The best rule is to continue the injection until reaction has fully taken place, by which time the fever will have subsided, and a free action of the skin will have been estab-

1) Op. Cit., p. 262.

lished. Whenever it is possible to prolong this action of the skin by the use of the liquor ammonii acetatis, or by any other remedy, it should be done. Nothing would be better than a Russian bath if it were available without involving the risks of exposure, and without entailing additional pain from the movements which would be necessary. The use of the hot water is usually very grateful, and, as it evaporates under the bedclothing, the action of the skin is thereby much increased.

“The continued action of the hot water is to stimulate the circulation in the pelvis, so that the local congestion may be relieved before nature attempts to do so by the exudation of serum into the surrounding tissues. With this view, it will be seen that an increased action of the skin must be most beneficial, and should be kept up as long as possible.”

The general directions for giving a hot water vaginal injection have already been presented in detail in a previous chapter, to which the reader is referred.

Should the attack prove not to have been aborted, or should the physician be called only after the stage of effusion has set in, he will, with the exception of the internal remedy, be called upon to employ about the same method of treatment as in the congestive stage. Absolute rest in the recumbent posture should be enjoined, the application of heat and moisture should be continued, and the hot water vaginal injections employed persistently twice a day, morning and evening, at least a gallon of water being used at each injection. Emmett says that in this stage, while the hot water can no longer act as a prophylactic, “it may indirectly stimulate the absorbents and diminish the pelvic circulation somewhat, and soothe the general system by temporarily relieving the local irritation. It thus gives great comfort, and is most useful in inducing sleep, when employed after the patient has been prepared for the night.”

In chronic cases, when, for any reason, the vaginal douche can not be used, the patient should use hot sitz-baths at least twice each day, and in such cases also when the poultices referred to become disagreeable to the patient, or seem to do no good, a piece of flannel may be wrung out in hot water containing either Aconite, Arnica, or Hamamelis, and applied double over the abdomen, this again being covered with oil silk. Should constipation be present, the bowels should be kept clear by the daily use of enemata, which must be administered very carefully, even the distension of the rectum by the enema sometimes causing great pain. At all events no fecal mass should be allowed to accumulate, and if for any reason the enemata do not suffice, a few ounces of warm flax-seed tea or oil should be thrown into the rectum, and

then the feces be gently removed with the finger. Cathartics are never to be employed. The food should be light and nutritious. Milk, eggs, beef-extracts, and other concentrated foods, which, while nourishing, are possessed of little fecal residuum. As far as the season and circumstances will permit, the patient should be allowed the benefit of fresh air and sunshine, but at all times be well protected from exposure by wearing flannel next the skin, except during very hot weather, and this exception should not be made in those cases where the patient is able to be out of doors. Electricity has been highly recommended for the relief of the pain in chronic cellulitis, and for promoting the absorption of the exudation. In this connection the reader is referred to Chapter XXI for Dr. Apostoli's method of treatment by intra-uterine galvanocauterizations. Should the exudation fail to be absorbed, and suppuration ensue, the case becomes one of pelvic abscess, the treatment of which will be considered in a separate chapter.

By no means of least importance in the treatment of pelvic inflammations is the selection of the appropriate homeopathic remedy. While the dominant school of medicine are compelled in this disease, as they are practically in all others, to depend mainly upon Opium and Quinine, we have at our command remedies which may cover every individual phase of the disease, and not only assist greatly in controlling the primary congestion and aborting the attack, but also in promoting absorption of the exudation after that has taken place, and saving the patient from the evil consequences of a pelvic abscess. Among the most important remedies are the following:—

ACONITE.—This is usually the first remedy called for, and is of use only in the congestive stage, when there is high fever, rapid pulse, great restlessness and anxiety. Nearly all recent old-school authorities recommend Aconite in this stage of the disease. Hart and Barbour say (1) it “should be given (in drop doses) every quarter of an hour until the pulse is reduced and sweating brought on.”

VERATRUM VIRIDE.—This remedy is also useful in the congestive stage, and will generally cover those cases where Aconite is not indicated. The congestion is very strong, the pulse quick, full and incomprehensible, and there is not the characteristic restlessness and anxiety of Aconite. It is often indicated in cases occurring in fullblooded, plethoric women. According to Dr. Ludlam (2) it is more especially useful in “lying-in and nursing women, and in those in whom an erysipelatous inflammation either

1) *Manual of Gynecology*, p. 158.

2) *Arndt's System of Medicine*, p. 505.

alternates with, or predisposes to, pelvic cellulitis. It has a wonderful power to control and regulate the vascular movements, to equalize the circulation through the areolar tissue within the pelvis, as well as in other parts of the body, and to stamp out a local congestion that would almost inevitably result in an inflammatory exudation. It may be given in the second or third decimal dilution, and in urgent cases the dose should be repeated every half hour for two or more hours, after which it may be given less often."

BELLADONNA.—This remedy is more apt to be indicated in the latter part of the stage of congestion, when the former remedies have failed to abort the inflammation and effusion is about to take place, and in cases resulting from or complicated with erysipelas. The face is flushed, the carotids throbbing, and the pulse full and bounding. The abdomen is distended and very sensitive to touch, and violent cutting colicky pains come and go rapidly. There may be retching, vomiting, anxiety and dyspnoea.

ARNICA is useful in cases of traumatic origin.

BRYONIA.—Most useful in the first part of the stage of exudation; stitching, lancinating pains in the abdomen, worse from the slightest motion; tongue white and dry; great thirst; constipation.

COLOCYNTH.—Abdomen distended and painful; violent cutting pains causing the patient to bend double, occurring in paroxysms. Dr. Ludlam (op. cit.) says Colocynth will frequently control the pain and abort a coincident peritonitis, especially when it occurs in the region of the ovaries, or in the visceral peritoneum within the pelvis or the abdomen. It has a marked effect to prevent the serous effusion into the peritoneal cavity, which sometimes complicates severe attacks of pelvic cellulitis.

APIS.—The action of Apis upon the cellular tissues is more characteristic than that of any other remedy, and its power to cause absorption of cellular effusions is proverbial. It is especially indicated when the abdomen is distended and sensitive, with burning, stinging pains in the uterus or ovaries, œdema of the extremities, absence of thirst and scanty urination.

MERCURIUS.—This is one of our best remedies to promote resolution after exudation has taken place, and generally follows well after Bryonia. Some prefer the Mercurius corr., especially in peritonitis. Dr. Ludlam recommends the Mercurius iod. The special indications of Mercurius are too numerous to repeat.

RHUS TOX is useful where there is a tendency to typhoid; tongue red at the tip; great restlessness, changing position continually though it increases the pain.

ARSENICUM.—The patient rapidly emaciates; great prostration, adynamia; nervous restlessness; drinks often, but little at a time.

ANTIMONIUM TART.—This drug, according to Dr. Ludlam, “has a specific influence in removing patches of induration which are neither very extensive nor very firm in their texture. In these limited tumors, especially if the patient is of good general health, it seems to take hold in some such way as it does in cases of areolar hyperplasia of the uterine cervix. By its persistent use in the third decimal trituration, repeated three or four times a day, these indurations begin to melt, and finally disappear.”

TEREBINTHINA.—According to the same author, “in cases of pelvic cellulitis following circumscribed peritonitis, ovaritis, or typhlitis, the Terebinth may be given with a good result in the second decimal trituration. If the lesion involves the bladder and implicates micturition, the indication is also a good one.”

CHAPTER XLVIII.

PELVIC ABSCESS.

THIS condition is usually described in connection with pelvic cellulitis, but as it is very liable to arise from other causes quite distinct from either pelvic peritonitis or pelvic cellulitis, it is eminently proper that it should receive separate consideration.

DEFINITION.—A collection of pus originating within the pelvis. This does not include lumbar, psoas and other abscesses, which, while originating outside the pelvis, sometimes involve the pelvic tissues.

ETIOLOGY.—Pelvic abscess most often follows as a sequel of pelvic cellulitis. It may likewise be a sequel of pelvic peritonitis, metritis, salpingitis or ovaritis. It may also result from the suppuration of an hematocele, an ovarian cyst, an extra-uterine embryo, or, from the breaking down of tuberculous material deposited in any of the tissues of the pelvis.

SYMPTOMS.—These are such as usually indicate suppuration in other parts. Rigors, fluctuating high temperature, throbbing pain, hectic fever and profuse sweats are present in proportion to the extent and acuteness of the suppuration. Bi-manual examination reveals a soft, fluctuating mass, located in the place which was formerly the seat of inflammation. When the abscess has followed a cellulitis, there will have been a hard exudation in the parts. Sometimes the soft, fluctuating mass is surrounded by a hard exudation which still remains.

DIAGNOSIS.—If the above symptoms follow a history of inflammation, there is usually little doubt of the diagnosis, but should there be any uncertainty, and the case be such as to require immediate interference, the aspirator may be used to establish the character of the tumor.

PROGNOSIS.—This depends largely upon the location at which rupture takes place. Should this occur upon the abdominal wall, or within the vagina, with a free discharge, the probabilities are favorable to recovery. Should the abscess open into the rectum, it is less favorable, and still less so when the bladder is the point of its exit, but a rupture into the peritoneal cavity is the most unfortunate, giving rise immediately to a rapidly fatal peritonitis. Sometimes an abscess establishes two points of exit, which renders the prognosis less favorable. Sometimes the discharge continues

for a long time; or the sinus closes, only to re-open at the same or some other point, until finally the patient succumbs from the consequent exhaustion. In exceptional cases death results from embolism or septicæmia.

TREATMENT.—One of the most important features in the treatment of pelvic abscess is to sustain the strength of the patient, that she may be better able to stand the tax upon her vital forces which the continued process of suppuration involves. She should be supplied with the most nutritious diet, such as beef, eggs, milk, etc.; and should take malt liquors, or whiskey, or brandy in case of great prostration. The remedies most likely to be needed for the constitutional symptoms are Arsenicum, Cinchona and Iodine, according to indications. For the suppurative process:—

HEPAR SULPH.—When the process is enevitable, and we wish to hasten it.

MERCURIUS.—This is one of our most valuable remedies in suppurative conditions, especially when the nutrition is seriously impaired. It does not promote suppuration as does Hepar, nor check it as does Silicea, but it seems to assist in keeping the process circumscribed, and causing its absorption. It is therefore most useful to avert threatening suppuration before it has taken place.

SILICEA.—When the process of suppuration is slow and long lasting, causing a very serious drain upon the system, and when there are fistulous openings into other organs or parts.

SURGICAL TREATMENT.—There exists much difference of opinion as to the proper surgical management of a pelvic abscess. Some think the pus should be evacuated early, even though it be deep-seated and give rise to no urgent symptoms. Others think it should be left to nature entirely, being allowed to “point” and open at its pleasure. I do not think it is safe to follow either of these opinions. The abscess should never be opened until there are symptoms which indicate its necessity; whereas, on the other hand, the effort should never be left to nature unless we are pretty sure from appearances that the abscess promises to “point” in a location favorable to its discharge. There can be no fixed rule, and the judgment of the surgeon must decide in each case. In the event of its being advisable to open the abscess, the puncture should usually be made at the spot where it has a tendency to “point,” if that can be discovered; if not, a point should be selected from which the abscess can be most easily reached through the vagina or abdominal walls, the vagina being by far the safer location, though in some instances the tumor is located so far up that it can only be reached from the abdominal surface. Should it be decided to reach the abscess through the roof of the vagina,

the patient should be etherized, placed upon her right side, and a Sims' speculum introduced. If it is found that the pus is probably contained in a single cavity, and there is no evidence of decomposition, or symptoms of septicæmia, the abscess may be evacuated by aspiration, but as a rule the use of the aspirator in the treatment of pelvic abscess has not given satisfaction. There is danger that clots of blood, sloughs of connective tissue, and shreds of lymph, too large to pass through the needle, will be left behind, and keep up the process of suppuration.

If it is decided to open the abscess with a knife, a grooved director or exploring needle is pushed into the abscess cavity at some point as remote as possible from the pulsating vessels which may be discovered. As soon as pus appears in the groove a tenotomy-knife is to be passed along the director, and the opening enlarged by cutting in opposite directions until it is capable of admitting the index finger.

After introducing the finger into the cavity any partitions which may be felt are to be broken down. A full-sized drainage tube should then be introduced, and secured in position by stitching it to the vaginal wall. Through this tube the cavity may be washed out daily, or oftener, by a gentle stream of pure water, or the water may be made stimulating and disinfectant by a solution of the bichloride of mercury, 1:4000, or of Lugol's iodine somewhat diluted, or the hydrogen peroxide may be used, which, from its innocuous character and its remarkable germicidal properties, is, I am satisfied, destined in a great measure to supplant the irritating and more or less dangerous disinfectants which are now used in connection with pus-discharging surfaces.

Should fungoid masses be discovered within the abscess it will be necessary to introduce the finger or a dull curette and scrape them away. In case the abscess is located so high up that it cannot be reached from the vagina, or if for any other reason the vaginal operation is inadmissible, resort must be had to abdominal section, as proposed and successfully practiced by Mr. Lawson Tait.

An incision two inches in length is made through the linea alba, midway between the umbilicus and pubes, and after all bleeding is stopped the peritoneal cavity is opened and the abscess aspirated; then a free incision is made into the abscess wall, and its edges are carefully stitched to the edges of the abdominal wound. A drainage tube of glass or rubber is then inserted, and the cavity is daily washed with plain water.

Sometimes the abscess wall is adherent to the abdominal wall in front. In such cases the treatment is more simple—evacuation of its contents and drainage. In other cases the accumulation of

pus is small and lies deep in the pelvis. Here the work inside the abdomen will consist in separating the attachments of adherent viscera and in ligating and removing the diseased appendages. While doing this the abscess-cavity may be ruptured and its contents discharged into the peritoneum. The pus should then be carefully taken up by sponging, and the pelvis washed scrupulously clean with warm water, and then drained.

Of this operation Mr. Tait says (1):—"My general conclusion from these cases is that the opening of such abscesses by abdominal section is neither a difficult nor a dangerous operation; that recovery is made in this way more certain and rapid than in any other; and that in future I shall always advise an exploratory incision where I am satisfied there is an abscess which cannot be reached nor emptied satisfactorily from below."

Sometimes cases are found in which the abscess has already discharged at one or more points and sinuses remain which it is desirable to close. It may then be necessary to make a counter-opening through the vagina. In order to best accomplish this, Simpson recommends that a large probe or sound be passed through some opening above the pelvic brim, down into the pelvis until its point is felt by the side of the womb in the upper part of the vagina. Then, cutting upon this as a guide, at the most dependent point of the abscess-cavity, a counter-opening is made.

Cases of this kind are usually old chronic ones and often present many grave difficulties in their treatment, the management of which cannot be established by fixed rules, but must depend entirely upon the conditions found in each case. Sometimes the sinuses may be closed by the application to their walls of a strong tincture of Iodine, while in other cases all treatment fails and final resort must be had to abdominal section and the removal of the diseased appendages. At all times the treatment of pelvic abscess requires the exercise of the most careful judgment, and there is usually no disease to which woman is subject where the patience and skill of the surgeon are more severely taxed.

1) *Diseases of the Ovaries*, 1883, p. 351.

CHAPTER XLIX.

PELVIC HEMATOCELE.

SYNONYMS.—Uterine Hematocele. Retro-uterine Hematocele. Peri-uterine Hematocele. Pelvic Hematoma.

DEFINITION.—An accidental collection of blood within the pelvis either above or below the pelvic peritoneum. Winckel (1) defines pelvic hematocele to be “an encapsulated extravasation of blood into the true pelvis.” He, with some other authors, holds that to constitute hematocele the effusion must be fixed in place by firm coagulations or surrounding inflammatory exudations. Hart and Barbour define pelvic hematocele to be “an effusion of blood into the pelvic peritoneum, enclosed either by anatomical structures, or previously existing inflammatory adhesions” (2).

Schröder refuses to accept as pelvic hematocele any collection of blood within the pelvis save that which Nelaton, who first described hematocele, defined as “the formation of a tense bloody tumor in Douglas’ cul-de-sac, which crowded the uterus against the symphysis pubis” (3). He therefore adopts only the term ‘retro-uterine,’ and, with Voisin, Bernatz and others, considers all cases as intra-peritoneal. Simpson, on the contrary, considered that a hematocele was usually formed by hemorrhages taking place outside of the peritoneal sac. I think, however, that it will best serve all practical ends to treat as pelvic hematocele all effusions of blood taking place within the pelvis, whether in the peritoneal cavity, or under the peritoneum, or within the connective tissue of the pelvis. It must be borne in mind, however, that pelvic hematocele is not a disease, but only a symptom of some previously existing pathological condition.

PATHOLOGY.—As a rule, a hematocele is located in Douglas’ cul-de-sac, and displaces the uterus forward. Should the hemorrhage be profuse, the blood may reach above and cover the broad ligaments and uterus. The effusion may take place into the vesico-uterine pouch, but such instances are rare. Sometimes an intra-peritoneal effusion of blood may occur without either the posterior or anterior pouches being filled. In such cases there have probably been prior adhesive inflammations which have obliterated or closed

1) Diseases of Women, p. 610.

2) Manual of Gynecology, p. 165

3) Ziemssen, Vol. X, p. 468.

these parts. Many authors hold that in most instances, at least, the encapsulating membrane is thus formed by previous inflammatory attacks before the effusion takes place, but this is hardly probable, for it is known that blood effused into serous cavities encysts itself within a few hours, being enveloped by lymph which creates a false membrane. Extra-peritoneal effusion, sometimes called hematoma, involve the intra-cellular tissues below the peritoneum, forming a solid mass, which sometimes pushes the peritoneum to such an extent as to give an appearance of intra-peritoneal effusion. Indeed this may go so far as to cause a rupture of the peritoneum, and, blood passing into the peritoneal cavity, the hematocele becomes both extra- and intra-peritoneal in character. Sometimes, if the blood is poor in fibrin, coagulation does not occur, the blood remaining in a fluid state and becoming absorbed; or, under some circumstances it may become purulent. In case coagulation takes place, as is usually the case, the mass becomes very hard, and is finally absorbed; or, suppuration may follow and give rise to pelvic abscess.

ETIOLOGY.—Hematocele is most apt to occur between the ages of twenty-five and thirty-five, when the generative organs are most active, but it has been known to occur in women who have passed the menopause. It most often occurs in women, who have borne children rapidly, though it may also occur in the sterile, but very seldom in those who are unmarried. It is said to constitute from five to seven per cent. of the diseases of women. It is therefore evident that the age of ovarian activity is a predisposing factor, as is also the married state and child-bearing. Purpura, scorbutis, chlorosis, plethora and anæmia are the blood states which may be said to predispose to hematocele. Chronic ovarian disease, pelvic peritonitis, and the hemorrhagic diathesis may also be included in the predisposing causes. The exciting causes are sudden checking of the menstrual flow; violent exercise during menstruation; violent coitus, especially during menstruation; blows or falls; obstruction of the cervical canal; obstruction of the oviducts.

A study of the causes of hematocele necessarily involves a consideration of the sources from which the blood, of which the effusion consists, may have been derived. These are usually three in number. 1. Rupture of vessels in the pelvis. 2. Reflux of blood from the uterus or tubes. 3. Transudation of blood in consequence of dyscrasia or pelvic peritonitis. According to Thomas (1) the following table gives the special and most frequent sources of the hemorrhage:

1. Rupture of blood-vessels in the pelvis:
Utero-ovarian;

1) *Pepper's System of Medicine*, Vol. IV, p. 241.

- Varicose veins of broad ligaments ;
- Vessels of extra-uterine ovisac.
- 2. Rupture of pelvic viscera :
 - Ovaries ;
 - Fallopian tubes ;
 - Uterus.
- 3. Reflux of blood from the uterus :
 - Menstrual blood.
- 4. Transudation from blood-vessels :
 - Purpura ;
 - Scorbutus ;
 - Chlorosis ;
 - Hemorrhagic peritonitis.

“It is then clear,” says Thomas, “that the mere presence of a large clot of blood in the pelvis, apart from general symptoms, is a matter of very doubtful significance, since on the one hand it may be the result of a mere regurgitation of menstrual blood due to imperviousness of the cervical or tubal canal, or, on the other, of the rupture of a Fallopian tube, which has become the nidus of an extra-uterine foetus.”

SYMPTOMS.—It is very seldom that pelvic hematocele occurs suddenly in women who have been in good health. I have never seen a case in which there had not previously been some disturbance of the generative organs, and usually irregular or delayed menstruation, and quite as often there had been for months, and even years, evidences of decided blood dyscrasia. In such the collection of blood may have taken place slowly, and the symptoms developed in a corresponding manner. But in the majority of cases the hemorrhages occur suddenly and without warning, producing violent shock and quickly developing symptoms of the most intense character, the patient rapidly succumbing, and death resulting within a few hours. Such cases are the result of a profuse, free hemorrhage into the peritoneal cavity, and are “non-encysted,” there having been no time for the lymph exudation to form and establish the encapsulation, on account of “the terrible suddenness and severity of the blow struck at the vital powers.”

Dr. Barnes has called these cases “cataclysmic,” and they are supposed to be most frequently the result of the rupture of an extra-uterine gestation sac, or the bursting of ovarian vessels. It must be remembered, therefore, that all cases do not present the same intensity of symptoms, the severity depending upon the suddenness of the attack, the amount of blood extravasated, and the general condition of the patient. Thus the cases may vary from those in which there is but a slight hemorrhage, and so few symptoms that the nature of the case may not be recognized, to the rapidly fatal cases above described.

Usually an attack occurs at or near the menstrual period, and most frequently follows on some unusual exertion. The patient complains suddenly of an intense, excruciating pain about the region of the pelvis; this is soon accompanied by more or less vomiting of bile and rapidly followed by symptoms of shock and collapse, pallor, faintness and exhaustion, coldness of the extremities, cold sweat, rapid, feeble pulse, and hiccough. Emmett says that "the pain is beyond every other symptom the most characteristic, and is as excruciating as if the tissues were being torn apart with violence." Soon enlargement of the abdomen may appear, and at the same time there is much disturbance of the bladder and rectum from pressure of the accumulated blood, the temperature falls below normal, and there is often menorrhagia. Death may result within a few hours; but in most cases there is within this time a more or less decided reaction, which may result in convalescence. Or, again, a first hemorrhage may be followed by a second, with a more profound collapse, and speedy death. In other cases the presence of the blood in the peritoneum or cellular tissue may give rise to inflammation, with its usual attendant symptoms, and be followed either by absorption and recovery, or by pelvic abscess with its usual history.

Physical exploration at an early stage will reveal a soft, boggy, obscurely fluctuating mass in the vagina, usually, but not always, posterior to the uterus. At a later stage this mass gives to the touch the sensation of a smooth, dense, solid body. The uterus is usually found pressed upward and forward toward the pubes, and generally to one side or the other, where the fundus can readily be traced by bi-manual examination. According to Emmett (1) a distinct mass is "rarely felt, and a displacement does not occur except when the fluid is confined to a limited space, or when extravasated into the cellular tissue beneath Douglas' cul-de-sac. When the blood is poured out rapidly into the peritoneal cavity, it will naturally gravitate into Douglas' pouch. But under other circumstances a clot may form about the seat of the rupture, so that nothing can be detected in the cul-de-sac for an indefinite time after the occurrence of the accident. If peritonitis has not occurred, and the blood is thrown out rapidly, it will accumulate, as any liquid would do, and fill up all the space about the uterus, without displacing the organ. Cases are, however, frequently met with in which it is exceedingly difficult to determine the exact locality of the hematocele, as to its being within or without the peritoneal cavity. But with care the diagnosis may generally be made out, even in difficult cases. An accumulation of the cellular tissue of the pelvis cannot lift the peritoneum to any great extent

1) *Op. Cit.*, p. 226.

without rupture; but after the blood escapes into the peritoneal cavity it will be impossible to distinguish whether it originally formed there or not. An hematocele within the peritoneal cavity may slowly enlarge, and extend out of the pelvis on the side of rupture to above the line of the umbilicus, although it may have had its beginning in a rupture in the cellular tissue. But, on the other hand, if the mass is felt extending low in the pelvis, the probability is far greater that the effusion is confined to the cellular tissue."

In case the extravasation is within the peritoneum, the tumor may be discovered by palpation through the abdominal walls, but not if the blood lies below the peritoneum.

DIAGNOSIS.—Pelvic hematocele is liable to be confounded with pelvic cellulitis; pelvic peritonitis, followed by enclosed serous effusion in Douglas' cul-de-sac; pelvic abscess; fibroid on the posterior wall of uterus; retroversion; extra-uterine pregnancy, and displaced ovarian cysts.

The two first named are most liable to be mistaken for hematocele, but the sudden onset, the absence of the symptoms of acute inflammation, and the symptoms of shock and collapse from loss of blood, which are present in the latter, are all-sufficient to make the diagnosis. Then, too, it should be remembered that the tumor in cellulitis is hard at first and afterward softens, whereas that of a hematocele is soft and fluctuating at first and gradually hardens. The tumor of cellulitis forms slowly; is tender from the first, and does not press the uterus forward against the pubes. Dolbeau gives two important diagnostic points:—

"The excessive pallor of the face, so important a symptom in hematocele, is never seen in pelvic peritonitis.

"The direction of the cervix forward belongs exclusively to hematocele."

Pelvic abscess shows plainly the history of a prior inflammation, while the present symptoms are those of suppuration rather than of a sudden loss of blood, and the tumor grows soft instead of becoming harder.

Retroversion of the uterus, especially in the gravid state, is sometimes mistaken for hematocele, but a careful bi-manual examination taken together with the absence of anæmic symptoms is all that is required to correct the mistake.

Fibroids are of slow and painless growth, are hard and irregular in form, and firmly attached to the uterus, and pull the latter backward, rather than push it forward against the pubes.

Extra-uterine pregnancy, by a rupture of its sac, produces hematocele in its most violent and fatal form. So, while it is seldom necessary to differentiate between these conditions it is important

to decide, if possible, whether extra-uterine pregnancy is present or not. The symptoms of gestation, together with an empty uterus, and the knowledge of the previous presence of a definite tumor, are reliable indications. But if an early extra-uterine foetation bursts into the cavity of the peritoneum, as is usually the case when the ovum is developed in the Fallopian tube, its existence can only be surmised, but cannot be demonstrated.

Displaced ovarian cysts have the history of a comparatively slow, painless growth, remain continuously, as at first, a soft fluctuating mass, and present no symptoms of intensity or severe hemorrhage.

PROGNOSIS.—When the effusion is very large death usually results within a few hours from loss of blood and the shock caused by the sudden invasion of the peritoneum. If death does not occur, recovery by absorption generally follows; or, peritonitis setting in, the usual course of that disease is followed, the final history often being that of a pelvic abscess. When the extravasation is slight, or is well encapsulated, or is extra-peritoneal in character, the prognosis is favorable.

Thomas says that as a rule the prognosis of hematocele “is decidedly favorable unless the surgical tendencies of the attending practitioner alter its natural inclination.” I must confess that my own experience has not been very encouraging, the several cases that have come under my own observation having all been “cataclysmic,” death resulting in each case in from a few hours to as many days.

TREATMENT.—While it may be impossible to foresee an attack of internal hemorrhage, yet when a woman is suffering from any of those peculiar blood states which are known to predispose to hematocele, or if she have obstructive dysmenorrhea, or varicose veins with profuse and painful menstruation, she should be surrounded by all possible safeguards against this unfortunate accident. Such women should avoid all violent exercise, traveling or exposure during or near the menstrual period, and sexual intercourse should be absolutely prohibited during that time, and at all times should be practiced with moderation and without violence, and in such cases the indicated remedy should be perseveringly administered. At the onset of the attack the patient should be placed in a recumbent posture, absolute rest enjoined, and ice-bags applied to the abdomen.

Emmett recommends a moderately tight abdominal bandage. Hot fomentations and poultices are to be avoided. If the patient is collapsed, stimulants should be used freely, and it may be required to give hypodermic injections of brandy or sulphuric ether, but this should cease as soon as the temperature

becomes normal, and the patient be placed at once upon milk, eggs, peptonized meats, etc.

Old-school authorities recommend hypodermic injections of ergot as a vascular styptic.

The relief of the agonizing pain which the patient suffers, incident to an attack of hematocele, becomes a matter of serious importance to those who are opposed to the use of Opium. But as the pain is due to a mechanical cause, and is not amenable to the usual homeopathic remedies, there seems to be no other way than to resort to the use of a palliative. In such cases I have never been able to withstand what seemed to me to be the instincts of humanity, and have always prescribed morphine for the relief of the pain.

In cases where the pain is not so extremely violent as to make a palliative absolutely necessary, the remedy most frequently indicated is Ipecac, though often Aconite will be called for. Later Secale may be given. The remedies usually called for after reaction has set in are Arsenicum, Chininum, Chininum ars., Nux vom., Ignatia, or Rhus tox, though other remedies may be demanded by the individual symptoms of the case. After inflammation is established, if it should occur, the course of treatment is essentially the same as for pelvic peritonitis.

It now remains to notice the indications for or against surgical interference. If it is evident that the attack is intra-cellular, it should not be interfered with, as no surgical procedure can compensate for the loss of the restraining influence of the pelvic fasciæ or coverings. If the effusion is within the peritoneum, the question as to the propriety of surgical interference becomes a serious one. Most authors, however, favor non-interference, believing that experience has shown that nature does better without any surgical aid, whether the latter be by abdominal section, by puncture with the bistoury, or by aspiration. In case, however, it is quite evident that the hemorrhage is due to a ruptured extra-uterine sac, or if there be an ovarian tumor, or a diseased and occluded Fallopian tube, I believe that, unless such a procedure is especially contra-indicated, the proper thing is to operate by abdominal section.

When suppuration has taken place and symptoms of septicæmia are manifest, the accumulated blood, or pus and blood, should be evacuated by a free opening made at the safest point indicated, and the sac thoroughly cleansed by repeated washings with a weak solution of carbolic acid.

But little can be expected from the administration of remedies after the hematocele has occurred, but should recovery take place a recurrence may be prevented by giving such remedies as the con-

stitutional symptoms of the patient may demand; and indeed if death does not occur at once, remedies will do much toward bringing about an absorption of the effused blood. Those which are mostly to be relied upon for this purpose are: Apis, Arnica, Arsenicum, Chininum, Digitalis, Hamamelis, Kali iod., Mercurius, Phosphorus, Secale, Sulphur.

CHAPTER L.

AMENORRHEA.

DEFINITION.—Amenorrhea is an absence of the menstrual flow occurring at any time between puberty and the menopause, except during pregnancy and lactation, when such a condition is physiological.

VARIETIES.—Amenorrhea occurs in two forms:—1. Those cases where menstruation has never occurred, *emansio mensium*; 2. those in which it has ceased after having been established, *suppressio mensium*. In addition, the term partial amenorrhea has been used to designate a condition of scanty, tardy or irregular menstruation. The term vicarious menstruation is used to designate a condition in which, in the absence of a discharge of blood from the uterus, there are periodic hemorrhages from other parts, such as the nose, lungs, etc.

PATHOLOGY.—Amenorrhea is but a symptom of various existing pathological states of the generative organs with which it may be associated, each of which is elsewhere considered. It may arise also from grave constitutional diseases, such as phthisis, etc. It is evident, therefore, that the condition itself can have no established pathology, nor is it probable that amenorrhea ever gives rise to pathological states, it being itself a result rather than a cause of the many constitutional diseases with which it is associated, and the existence of which has been erroneously attributed to the failure of the menstrual function. An exception should apparently be made in those cases where acute suppression of the menses occurs from exposure to wet or cold, the flow not resuming, and phthisis rapidly following. Yet, in such instances, there is no reason to suppose that the exposure might not have produced phthisis, even had there been no disturbance of the menstrual flow. Such cases are not uncommon.

The wide range of pathological conditions liable to give rise to amenorrhea may be inferred from the following quotation from Dr. Thomas, who says that “for the proper performance of the menstrual function three elements must exist in a perfect state of integrity: 1st, the uterus, ovaries, and vagina must be perfect in form and vigor; 2d, the blood must be in its normal state; and 3d, the nervous system governing the relations between the uterus and ovaries must be unimpaired in tone. Any influence disorder-

ing one or more of these may check ovulation, the great moving cause of the function, preventing the degree of sympathetic congestion necessary for rupture of uterine vessels; or oppose the discharge of blood which has been effused."

ETIOLOGY.—In accordance with the above views, Dr. Thomas tabulates the causes of amenorrhea as follows:

Abnormal states of organs of generation:

- Absence of uterus or ovaries;
- Rudimentary uterus or ovaries;
- Occlusion of uterus or vagina;
- Uterine atrophy;
- Pelvic peritonitis;
- Atrophy of both ovaries;
- Cystic degeneration of both ovaries.

Abnormal states of the blood:

- Chlorosis;
- Plethora;
- Blood states of phthisis;
- Blood states of cirrhosis;
- Blood states of Bright's disease, etc.

Abnormal state of ganglionic nervous system:

- Atony from mental depression;
- Atony from indolence and luxury;
- Atony from want of fresh air and exercise;
- Atony from constitutional diseases, as phthisis, etc.

These abnormal conditions, together with the symptoms they produce, may be better studied under their individual headings, and need not be further considered here.

EXCITING CAUSES.—These operate only in cases of acute suppression, which may result from exposure to cold or wet just before or during the discharge, or from fright, grief, mental distress, or any profound disturbing influence.

SYMPTOMS.—In chronic amenorrhea the symptoms are often only such as are characteristic of the pathological condition of which the amenorrhea itself is but a symptom, and are better considered in connection with those conditions.

Acute suppression may give rise to symptoms which, in character and intensity, will vary from those of ordinary menstruation—backache, heaviness and weight, pelvic pains, etc.—to symptoms of profound disorder, leading sometimes to severe and dangerous diseases.

DIAGNOSIS.—The diagnosis of amenorrhea is self-evident, but the diagnosis of the pathological condition which produces it is

often a matter of difficulty, and can only be accomplished by a thorough understanding of these respective states. Often the most important consideration is to determine whether or not the menses are absent from physiological causes—pregnancy or the menopause. Should the menses have ceased suddenly in an otherwise healthy subject, the usual signs of pregnancy—morning sickness, etc.,—should be considered. It should not be forgotten that the menopause may occur at an early age, as also may puberty be delayed much beyond the usual time, which facts should enter into consideration in those cases in which menstruation has ceased without apparent cause, or, where it has not appeared at the usual age, and where, in either instance, abnormal symptoms have not developed.

PROGNOSIS.—This depends upon our ability to remove the existing cause, and is usually favorable. Aside from cases resulting from an absence or rudimentary condition of these organs, those which result from blood states or constitutional diseases are the most serious in their character.

TREATMENT.—In the first place it is a safe and proper rule to follow that no case of amenorrhea requires treatment so long as it presents no positively morbid symptoms. Very frequently *emansio mensium* requires no treatment, but *suppressio mensium* and partial amenorrhea usually demand medical aid.

The treatment invariably consists in ascertaining and removing the cause, whether mechanical or constitutional.

For the treatment of those cases arising from abnormal states of the organs of generation the reader is referred to the respective subjects elsewhere considered. Cases arising from abnormal states of the blood, or nervous system, require chiefly the indicated remedy, but the great importance of proper hygienic and dietary influences must not be overlooked. Frequently the primary cause lies in malnutrition brought about by improper food and irregular habits of life. Girls that are sedentary in their habits, or are being reared under the pernicious influences of an artificial life, are quite prone to amenorrhea, and in such we can only hope to secure a restoration to health by a systematic and strict observance of hygienic rules. The feet should be kept warm and dry; flannel should be worn next the skin at all times; regular habits should be enjoined as to early retiring and early rising, bathing, regular meals of plain nourishing food, and regular defecation; systematic exercise, but not to over-fatigue; plenty of fresh air and sunlight, cheerful surroundings and agreeable society. These are important measures and should be persistently observed.

In acute suppression, the hot douche, or hot sitz- or foot- baths.

are valuable adjuvants, and indeed they may often prove of equal value in chronic cases.

Electricity may prove servicable in any form of chronic amenorrhea. The positive should be applied over the lower portion of the spine, and the negative over the hypogastrium, or, still better, directly to the os uteri.

The remedies most often called for are as follows:—

Amenorrhea from chlorosis:—Aletris, Apis, Calcareo carb., Arsenicum, Chininum, Chininum ars., Ferrum, Ferrum iod., Ferrum phos., Helonias, Ignatia, Lilium, Nux vom., Phosphorus, Pulsatilla, Sepia, Senecio, Zinc.

Amenorrhea from plethora:—Aconite, Belladonna, Gelsemium, Nux vom., Sulphur.

Amenorrhea from constitutional diseases:—Aletris, Arsenicum, Calcareo carb., Chininum, Chininum ars., Cimicifuga, Conium, Ferrum, Ferrum phos., Graphites, Iodine, Phosphorus, Pulsatilla, Sepia, Sulphur, Zinc.

Acute suppression from cold:—Aconite, Belladonna, Pulsatilla, Causticum, Cimicifuga, Gelsemium.

Acute suppression from fright or sudden emotions:—Aconite, Belladonna, Cimicifuga, Ignatia, Opium, Platinum, Pulsatilla.

First menses delayed:—Aletris, Calcareo carb., Cimicifuga, Graphites, Pulsatilla, Silicea, Sulphur.

Partial amenorrhea:—Calcareo carb., Cimicifuga, Graphites, Phosphorus, Pulsatilla, Senecio, Sepia, Silicea, Sulphur.

Vicarious menstruation:—Bryonia, Hamamelis, Millefolium, Phosphorus, Pulsatilla, Ustilago.

Only the chief indications for a few of the most important remedies can be given.

ALETRIS.—From atony of the ovaries and uterus; anæmia; defective nutrition; indigestion; constipation; fainting; especially when weak from protracted illness.

APIS.—Chlorosis; face œdematous, puffy, waxy; stinging pains especially in right ovary; menses scanty and irregular.

CALCAREA CARB.—Especially useful in scrofulous or tuberculous subjects; fair, plump girls, of a leuco-phlegmatic temperament; mal-nutrition; disturbances of indigestion; weary, languid, want of vitality; anæmia.

CIMICIFUGA.—In rheumatic, neuralgic, choreic or hysterical subjects; menses irregular, delayed or suppressed; ovarian irritation; uterine cramps; bearing down in uterine region and small of back, limbs heavy and torpid; suppression from cold or emotions; more generally useful in all classes of amenorrhea than any other remedy.

FERRUM.—In weakly, chlorotic persons, with fiery redness of

the face; great nervousness and debility; emaciation; rush of blood to the head, veins of head swollen; flushes of heat in face.

GRAPHITES.—First menses delayed, or disturbances at the menopause. “Graphites is in climax what Pulsatilla is in youth” (Lilienthal). Menses late, scanty and pale; pain in epigastrium as if everything would be torn to pieces; patient inclined to obesity; induration of ovaries.

HELONIAS.—From atony; anæmia; chlorosis; disordered digestion; general weariness and languor; depressed mood; censorious fault-finding; prolapsus from muscular atony; loss of sexual desire.

IGNATIA.—Menses suppressed from grief or suppressed mental suffering; frequent sighing; brooding over her troubles; sensation of weakness and sinking at pit of stomach; hysteria.

LILIUM TIGR.—Partial amenorrhea accompanied by nervous affection of the heart and ovarian irritation or uterine displacements and leucorrhea.

PHOSPHORUS.—Amenorrhea with blood spitting, or hemorrhage from the nose, anus or urethra; especially in tall, slender phthisical patients; dry cough and tight feeling in the chest.

PULSATILLA.—Anæmia without chlorosis. First menses delayed; menses late, scanty, and of short duration; suppressed from getting the feet wet; heavy pressive pain in abdomen and small of back, as from a stone; leucorrhea like cream or milk; pains shift from part to part; constant chilliness; especially adapted to patients with light hair and blue eyes, and who are of a gentle, submissive, tearful disposition.

SENECIO.—Menses suppressed from cold; irregular, tardy or scanty; great debility; nervousness; sleeplessness; gastric derangements; pulmonary disease.

SEPIA.—Menses late and scanty; leucorrhea before the menses, like milk, excoriating; uterine displacement; face sallow, with yellow spots; bearing-down pains; weakness and tired pain in small of back.

CHAPTER LI.

MENORRHAGIA.

DEFINITION.—Menorrhagia is a too profuse and too protracted menstruation—an excessive discharge of blood occurring at the menstrual period; when not coincident in point of time with the menstrual period, it is known as metrorrhagia. The pathology and treatment are the same, so there need be no practical distinction between the two.

PATHOLOGY.—It must be borne in mind that a flow of blood from the uterus is usually a physiological process, and also that the menstrual discharge is naturally more profuse in some than in others. Therefore the first point to decide is whether or not the discharge is excessive. This is sometimes difficult, as in practice we meet every form and degree of change from the normal individual type. In many cases the state of the general health informs us at once that the discharge is excessive, but this is not always the case. As menorrhagia is itself but a symptom of either functional or organic disease of the uterus, it follows that its pathology is that which characterizes the disease which produces it. However, it must be admitted that a violent menorrhagia may occur without any disease or pathological state being recognizable, the whole difficulty being simply a derangement of function.

ETIOLOGY.—The causes may be classified as constitutional and local.

Constitutional causes.—Delicate constitution; diseases resulting from mal-nutrition, especially Bright's disease; tuberculosis; anæmia; purpura; scorbutic conditions; hemorrhagic diathesis; excessive lactation; plethora; mental disturbances; cardiac, hepatic or other visceral disease.

Local causes.—Endometritis; metritis; subinvolution; displacements; inversion; submucous and interstitial fibroids; polypi; fungus growths of the endometrium; carcinoma; sarcoma; retained products of conception; lacerated cervix; congestion occurring in ovaries, Fallopian tubes, or pelvic connective tissue or pelvic peritoneum.

We also should consider such predisposing influences as luxurious living; sedentary or unhealthy occupations; over-work or over-study; inordinate sexual indulgence; malaria; climate, residents in tropical countries being especially liable.

Menorrhagia may also occur as a sequel to fevers and inflammations, especially exanthemata.

VARIETIES.—Menorrhagia may be either (1) functional, (2) sympathetic or (3) organic.

1. *Functional*.—This variety is due solely to functional disturbances, there being simply an increase in the quantity of the discharge or the frequency of its occurrence, or both. It most often arises from plethora, but on the contrary is not infrequently the result of such causes as tend to produce debility and constitutional disease.

2. *Sympathetic*.—By this term is understood those cases that occur in the course of severe forms of general disease, such as Bright's disease, tuberculosis, cardiac or hepatic disease. In such cases menorrhagia is often a critical symptom, frequently serving to exhaust the feeble forces and hasten a fatal termination, on the same principle as a hemorrhage of the nose or bowels.

3. *Organic*.—This term "includes those cases that occur in connection with and are caused by organic disease of the uterus or its appendages, from simple congestion to fibroid and carcinomatous tumors."

SYMPTOMS.—The subjective symptoms are dependent entirely upon the character of the local or constitutional disease that induces the hemorrhage. The discharge itself may vary considerably in different cases without regard to the primary disease. Sometimes, from month to month, it becomes gradually increased in quantity, until there is considerable hemorrhage at each menses. Again, the profuse discharge may commence at once, and much blood be lost at each period, and be accompanied by severe pain and the discharge of clots. This may be the case and at the same time a copious hemorrhage occur during the inter-menstrual interval—metrorrhagia. Or, the discharge may at no time be very excessive, but it is continuous, sometimes alternating with leucorrhea; this constitutes a variety of metrorrhagia. Or, the case may be one of pure metrorrhagia, the loss of blood occurring suddenly, and not at the menstrual period, and be accompanied by pains in the back, hypogastrium, etc.

The character of the discharge also varies, as do the concomitant symptoms. Sometimes the latter become serious, arising from loss of blood, or because the discharge is only a manifestation of some grave disease; but such cases are too numerous to allow of any detailed description.

DIAGNOSIS.—It is easy enough to diagnosticate menorrhagia, but it sometimes becomes extremely difficult to establish the nature of the disease which is causing it. In every case where the cause is not plainly evident the uterus should be carefully explored, and

its appendages systematically examined, in order that any abnormal conditions of these parts may be brought to light. The methods for so doing are considered elsewhere.

PROGNOSIS.—In functional menorrhagia the prognosis is favorable. In the organic and sympathetic varieties it depends entirely upon our ability to discover and remove the cause.

TREATMENT.—During an attack the patient should be kept at rest in a recumbent posture, the foot of the bed being elevated a few inches. None but cold acidulated drinks should be permitted, and cold applications, especially ice-bags, applied over the hypogastrium, while at the same time ice-cold injections may be thrown into the vagina, or small pieces of ice applied to the mouth of the uterus. While this method is probably the quickest to check a violent hemorrhage, yet I am convinced that in most cases the persistent use of hot water injections affords the safest and most permanent means for controlling the hemorrhage. It has also been recommended to apply strong ligatures to the extremities. All other means failing, the vagina should be filled with a tampon, for which purpose I use surgeons' sponges, but in an emergency it may be necessary to use any available material, cotton wadding, or table napkins, which may, if desired, be saturated in a strong solution of alum. The cervix may be tamponed by sponge or slippery-elm tents. In desperate cases where none of these methods prove successful Dr. Thomas recommends that "the cavity of the body of the uterus be freely injected, after dilatation of the cervical canal, with the tincture of iodine, or solution of persulphate of iron, one third to two of water."

In all cases of menorrhagia, no matter how violent the hemorrhage may be, the homeopathic physician will not forget that he has at his command remedies which, if indicated, will often control like magic the most desperate attack even without the aid of those auxiliary measures already considered, although it is never wise to reject any mechanical means that may assist in accomplishing the greatly to be desired object.

The remedies most often used during an attack are Ipecac, Belladonna, Aconite, Trillium, Erigeron, Sabina, Cinnamomum, Hamamelis, Ferrum, Sulphuric acid.

Not less important are the means which must be adopted to accomplish a radical cure. These depend largely upon the cause, which it must be our endeavor to remove. Local conditions must be treated according to the means described under their respective headings, polypi or tumors removed, fungous growths curetted, displacements restored, etc. Constitutional defects must be combated by the indicated remedy and such hygienic measures as the nature of the case suggests. If the blood be impoverished, atten-

tion must be paid to the patient's habits of life. She should have nourishing food, plenty of fresh air and sunlight, and moderate exercise. A sea-voyage is often of great benefit, and frequently a change from a warm to a cold climate or from the lowlands to a mountainous region will in itself accomplish a cure. Especially in cases of malarial or tuberculous origin is a change of climate desirable. Daily cold hip-baths are of great value, or a sponge-bath, the skin being thoroughly rubbed with a crash towel. Rest in the recumbent posture should be secured for two or three days before the period, and sexual intercourse be prohibited during that time. The remedies liable to be called for in constitutional conditions are too numerous to mention in detail. They are chiefly Arsenicum, Calcareo carb., Chininum, Chininum ars., Ferrum, Ferrum phos., Mercurius, Nitric acid, Nux vom., Silicea, Sulphur, Zinc.

I will mention the chief indications for a few of the remedies most frequently used in menorrhagia.

BELLADONNA.—Especially from plethora. Discharge profuse, bright red and feels hot to the parts; flushed face, throbbing carotids; hard, full and bounding pulse; blood sometimes dark-red, decomposed and offensive; pressure, uneasiness and weight in uterine region, as if contents of abdomen would protrude through the vulva.

CALCAREA CARB.—Chronic cases arising from constitutional diseases, scrofula, tuberculosis, etc., especially in women of a leuco-phlegmatic temperament. Feet feel cold and damp; chilly and sensitive to slightest draught of air; also during lactation or at the menopause.

CAULOPHYLLUM.—Passive hemorrhage from atony of the uterus; especially after abortion or confinement.

CHAMOMILLA.—Discharge of clotted blood, which is dark red or black and fetid, accompanied by severe labor-like pains; flow intermittent and irregular; sensitive to pain; peevish and irritable; attacks of faintness.

CHININUM.—From atony of the uterus; ringing in ears, fainting, cold, loss of sight, blood dark and clotted; uterine spasms; twitches, jerks; wants to be fanned; especially in those who have lost much blood.

CINNAMOMUM.—Very profuse flow of bright red blood. Dr. Winterburn says: (1) "It has always done well in my hands, and has several times stopped severe hemorrhages after other apparently well-selected remedies had failed to make an impression."

CROCUS SAT.—Menorrhagia of dark, stringy, tenacious blood, coming away in long black strings; sensation of something alive

1) Arndt's System of Medicine, p. 893.

in the abdomen. Dr. Winterburn says he has never been able to verify the last symptom, which is according to my own experience. He especially recommends Crocus in functional menorrhagia occurring in young unmarried women.

CYCLAMEN.—Blood black and clotted; dizziness, stupefaction, and obscuration of vision, as if a fog were before the eyes.

ERIGERON CAN.—Profuse and alarming hemorrhage of bright red blood; every movement of the patient increases the flow; pallor and weakness in consequence of the discharge; frequent and urgent desire to urinate and spasmodic pelvic pains.

FERRUM.—Hemorrhage from the uterus, with labor-like pains in abdomen, and glowing heat in the face; blood light or lumpy, coagulates easily; flow generally delayed and frequently intermittent; comes on for a day or two, then ceases for some hours, returns, again ceases, but returns, and so on. Women who, though weak and nervous, have a very red face; in delicate chlorotic women.

HAMAMELIS.—Active hemorrhage; blood bright red, or, passive flow of venous blood; no uterine pains. According to Winterburn this remedy is useful in those passive hemorrhages, without much pain, in patients who suffer from varicoses, and who belong to the class of easy bleeders.

HELONIAS.—Atonic and passive menorrhagia; very profuse flow at every period, so that her strength is exhausted, and she suffers from debility; sallow and pale complexion; menorrhagia from ulcerated os or cervix, the blood being dark and bad smelling and continuing a long while; the flow is increased by the least exertion.

IPECACUANHA.—Blood bright red, profuse, clotted; nausea, breathing heavy, oppressed; stitches from navel to uterus. This remedy is more often used than any other in uterine hemorrhages, but is seldom useful unless there is constant nausea. Winterburn says: (1) "If the hemorrhage is very severe, and it seems desirable to stop it at once, I give Ipecacuanha, unless some other remedy is characteristically indicated."

MILLEFOLIUM.—Hemorrhage of bright red and fluid blood; uterine hemorrhages after great exertion; with congestive headache.

NITRIC ACID.—This remedy is not often used in menorrhagia, but Dr. Ludlam recommends it highly in cases of supervening abortion or during the menopause where there is a passive, irregular flow, and other remedies have failed. There is a loss of appetite, headache, malaise, and a series of symptoms that are chargeable to the continual drain upon her physical resources. She cannot sit upright or stand erect but the difficulty is increased.

1) Op. Cit., p. 391.

NUX VOMICA.—Especially suitable to women of irascible temperament ; fiery and easily excited, and to those who suffer from mental over-exertion, sedentary habits, excess of coffee-drinking or stimulants, or from too much rich food ; flow dark, thick and coagulated ; preceded by contractive uterine spasms.

PLATINUM.—Flow dark and clotted, with much bearing down and drawing pains in abdomen ; sensation as if she were growing larger, and feels that everything about her is small and inferior ; hysteria ; great sexual excitement, but shrinks from an embrace because the organs are so painfully sensitive ; organic menorrhagia, accompanying carcinoma, fibroids, etc.

SABINA.—This is one of our most frequently used remedies in uterine hemorrhages ; the flow occurs in paroxysms ; worse from motion ; blood dark and clotted, sometimes offensive. The chief characteristic is a drawing pain from the back through to the pubis. I once cured the most desperate case of menorrhagia that ever came within my knowledge, of over twenty years' standing, with this drug, my attention being called to it by the fact that the patient could not endure the sound of music. Dr. Winterburn says (1): "The pathological condition calling for Sabina is hyperæmia of the uterus ; and the nearer this approaches the inflammatory stage, the more likely is this remedy to be of service." This is true, yet, nevertheless, Sabina will often cure long standing cases resulting from atony, and, on the other hand, also menorrhagia from plethora. Lilienthal says "plethoric women with habitual menorrhagia." In some respects the remedy is similar to Belladonna, but the symptoms will readily differentiate.

SECALE COR.—Discharge black, fluid and very fetid ; worse from the slightest motion ; strong, spasmodic, expulsive pains in the uterus ; especially in feeble, cachectic, dyscratic women.

TRILLIUM.—Active or passive hemorrhage ; gushing of bright red blood at least movement ; later blood pale, from anæmia ; sometimes blood dark, thick and clotted ; pain in back and cold limbs ; flow returns every two weeks ; at menopause ; after exhaustion from exercise.

USTILAGO MAIDIS.—From atony of the uterus ; blood dark and clotted ; aching distress in uterus ; slow and persistent oozing of dark blood, with small black coagula ; the finger upon being withdrawn from the vagina is covered with dark semi-fluid (but not watery) blood, as though partial disorganization had taken place ; uterus enlarged, cervix tumefied, os dilated, swollen, and flabby ; perfect inertia of the uterus (Lilienthal).

ZINCUM.—Dr. Winterburn says of this remedy (2): "It has

1) Op. Cit., p. 392.

2) Op. Cit., p. 394.

this singular characteristic, that although the flow is abnormal in frequency and quantity, she feels perfectly well as soon as it sets in and as long as it continues. Before menstruation she is in constant pain in the small of her back, especially about the last lumbar vertebra; worse when sitting, better when walking, and relieved by pressure. Her restlessness is peculiar. She cannot keep her feet still, and she suffers from a variety of hysteric complaints. These conditions all return after menstruation, and with them an irresistible sexual desire, caused by vulvar pruritus. Zincum vies with Hamamelis in the varicose diathesis. Varices on the genitals, legs, and elsewhere are the source of the eroticism and of much of her pain; hence the relief from a free catamenial discharge. Zincum cures the varicosis and restores the functional operations of the womb to pristine rectitude."

CHAPTER LII.

DYSMENORRHEA.

DEFINITION.—Dysmenorrhea is a painful menstruation, the pain usually occurring just before or during the flow, but it may also be present after the flow has ceased.

PATHOLOGY.—Dysmenorrhea being but a symptom of various pathological states, it cannot be said to have any pathology which is distinctively its own. If all the organs of generation and their surrounding tissues are in perfect form and vigor, and sustain their normal relations to one another, and at the same time the blood and nervous systems are unimpaired, menstruation will take place without creating distinct pain, it being accompanied by only a sense of fullness and discomfort in the parts, and slight bearing-down sensations in the back and loins. As to its severity, dysmenorrhea may vary in degree from this normal condition, to one in which the patient suffers for a few hours or for many days the most excruciating and agonizing pains, which gradually undermine the health, and may induce other complications which together eventually destroy life. This condition may be brought about by any pathological state which causes a change in the shape or position of the uterus, congestion of the uterus, ovaries or surrounding cellular or serous tissues; or, a depreciated condition of the blood and nervous system creating a tendency to neuralgia, the uterine nerves, as a consequence, being in a state of hyperæsthesia. If neither of these conditions are present, dysmenorrhea is not likely to occur, though our knowledge of pathology is not yet so perfect that we can say that such a thing would be impossible.

VARIETIES.—For study and clinical convenience we may classify dysmenorrhea as follows:—(1) Congestive; (2) Neuralgic; (3) Membranous; (4) Obstructive. Some authors include also the spasmodic and ovarian varieties, but, as a rule, cases included in the former belong rather to the obstructive variety, while those dependent, supposedly at least, upon ovarian disturbance, may properly be classified as either congestive or neuralgic. It must be remembered, however, that any classification is more or less arbitrary, and cannot be rigidly followed. Nature does not always follow the lines thus established, to say nothing of those cases which present the characteristics of more than one variety, being dependent upon more than one pathological condition.

1. CONGESTIVE DYSMENORRHEA.

At the menstrual period, as has already been noted, a certain amount of congestion is normal, which involves the mucous lining of the uterus and tubes, sometimes also including the ovaries, the cellular tissue and the peritoneum. Whenever from any cause this normal congestion increases beyond physiological limits, the condition is known as congestive dysmenorrhea.

ETIOLOGY.—As may be readily inferred, but slight causes are sometimes necessary to induce an aggravation of the already existing normal congestion. These are most apt to operate in full-blooded, plethoric girls, who sometimes suffer more or less from this form of dysmenorrhea through life, the least exciting cause serving to intensify their sufferings. Yet at the same time congestive dysmenorrhea may occur in weak and anæmic girls who are subject to any of the following causes:—General plethora; sedentary or luxurious mode of life; exposure to cold or wet; displacements; fibroid tumors; chronic metritis; endometritis; salpingitis; ovaritis; pelvic cellulitis; pelvic peritonitis.

SYMPTOMS.—The patient usually complains for a few days before the period of a feeling of fullness, weight and heat in the back and pelvis, the flow being ushered in with more or less violent symptoms of a congestive or inflammatory nature, flushed face, hot skin and increased temperature. The pain varies in severity and character, but it is usually a steady, dull pelvic pain. The hypogastrium is usually more or less distended, hot and sensitive to the touch, the latter being often more noticeable over the left ovarian region. If the flow comes on freely the patient is ordinarily relieved, but this is not always the case, the suffering sometimes continuing to a greater or lesser extent for several days.

PROGNOSIS.—As a rule the prognosis is favorable, though cases resulting from irremediable pathological states are sometimes found. There are cases, too, occurring usually in plethoric women, where more or less aggravation of the normal menstrual congestion seems to become a habit of the individual, and relief comes only with the menopause.

TREATMENT.—Ordinarily this form of dysmenorrhea is amenable to the indicated remedy, both as to palliation and cure. As to the former, hot fomentations or the hot-water bag may afford great relief, but opiates should never be employed. If the dysmenorrhea be due to displacement, or structural disease, including any chronic pelvic inflammation, this condition must be treated according to the rules considered elsewhere in this book. In such cases dysmenorrhea is only one of the many symptoms that result from the pathological state, whatever it may be, and the symptom

itself cannot be overcome without first removing the diseased condition which causes it.

The remedies most often required are, Aconite, Apis, Belladonna, Bryonia, Cimicifuga, Ferrum phos., Lachesis, Nux vom., or Viburnum op.

2. NEURALGIC DYSMENORRHEA.

In this class there is usually no structural lesion or organic disorder, the dysmenorrhea depending upon the presence of a neurotic constitution, the nervous system in general and the uterine nerves in particular, being in a state of morbid sensibility, so that the causes which might in others produce neuralgia of the head or stomach or other parts, here concentrate their force upon the uterine nerves, giving rise to hyperæsthesia, which, under the influence of the menstrual congestion, causes pain. As one author says, "the nerves play a part corresponding to that of the vessels in the congestive form."

ETIOLOGY.—The predisposing causes are in general the same as those which tend to produce neuralgia in other parts:—The neuralgic diathesis, either hereditary or acquired; hysteria, which is rather a result of the nervous condition, than a cause; chlorosis; plethora; malaria; gouty or rheumatic diathesis; mental depression; luxurious and enervating habits; onanism; excessive sexual indulgence, or ungratified sexual desire; ovaralgia.

SYMPTOMS.—In this variety of dysmenorrhea the patient seldom at any time experiences an entire freedom from suffering. During the inter-menstrual period she may feel only a sensation of weakness, weariness and weight, but oftener she suffers more or less with headache, neuralgia and other nervous affections, including hysteria, which become more pronounced as she approaches the menstrual crisis. At this time also she may show aberrations of temper, irritability and a tendency to melancholy. In some cases there is no considerable inconvenience until the menstrual period arrives, which is usually quite regular. At this time, whether prodromata have been present or not, the patient experiences excruciating pain in the uterine region, back and loins, which usually moderates or entirely disappears when the flow is established, but in some cases continues with more or less severity during the whole period. The neuralgic nature of the pain is recognized not only by its character, but also by the fact that in some women it occurs at some distant part of the body, as the eye or face, instead of the uterine region, while in others it may alternate in its location, or involve different localities at the same time. The feet and hands are almost invariably cold. After the attack she is usually greatly exhausted for several days.

DIAGNOSIS.—The presence of the above described symptoms, and the absence of anatomical changes, are usually sufficient to establish the diagnosis. The pains are not expulsive, the blood is not clotted, and physical examination reveals no obstruction. From the congestive form it is chiefly differentiated by the absence of congestive symptoms. It is also, when once established, more regular in its occurrence, regardless of exciting causes.

PROGNOSIS.—As in other neuralgias the prognosis depends largely upon our ability to discover and remove the cause. If the patient inherit a neuralgic diathesis, the prospects for a cure are very discouraging. Otherwise, if she will consent to the adoption of such hygienic measures as are required to restore the tone of the nervous system, the prognosis is quite favorable.

TREATMENT.—The first duty of the physician is to prescribe such hygienic measures as will have a tendency to restore the tone of the nervous system. The patient should, if possible, be relieved of all mental worry and excitement, and not be exposed to the influences of cold or damp, though in pleasant weather an abundance of fresh air and sunlight are indispensable. Flannels of proper weight should be worn next the skin during all seasons. She should take regular and systematic exercise, though never carrying it to the point of fatigue. A plain, nourishing diet is essential, and all the habits of life, especially as to sleeping, eating and defecation, should be regular. Often a change of climate and scenery will afford much benefit.

Electricity has proved a valuable adjuvant in the treatment of this disease. It should be used two or three times a week during the inter-menstrual interval, and applied as a general tonic as well as locally, according to the usual seat of the pain. For the former purposes I usually have the patient place her feet in warm water in which has been placed the positive pole, treating the upper part of the body, down to the thighs, with the negative pole. I always use the Faradic current, though Drs. Hammond, Anstie and other distinguished neurologists, always use the galvanic. Such patients are quite apt to be sterile, but, if conception can be brought about, parturition will often effect a cure.

When the symptoms commence the patient should take a hot foot-bath and go to bed, where she should be kept quiet and warm, using hot applications to the abdomen and extremities if necessary. If the bowels are constipated she should previously use a copious enema of castile soap-suds.

In cases in which the suffering is extreme, the temptation to give an opiate is very great, but, we should remember that such relief is only temporary—often no more than can be had with the properly indicated homeopathic remedy, that it is obtained at the

expense of the patient's general health, and, being oft repeated, is almost sure to lead her to acquire the morphine habit.

The remedies most often required are:—*Asclepias*, *Belladonna*, *Caulophyllum*, *Chamomilla*, *Cimicifuga*, *Gelsemium*, *Hyoscyamus*, *Ignatia*, *Phosphorus*, *Platinum*, *Pulsatilla*, *Viburnum*, *Xanthoxylum*. For indications see end of chapter.

8. MEMBRANOUS DYSMENORRHEA.

DEFINITION.—Membranous dysmenorrhea is painful menstruation accompanied by the discharge of larger or smaller pieces, tube-shaped portions, or pear-shaped sacs forming complete casts of the lining membrane of the uterus.

PATHOLOGY AND ETIOLOGY.—It must be understood at the outset, that the membrane cast off in this form of dysmenorrhea is not a plastic exudation due to a croupy or diphtheritic endometritis, as was once supposed, but, that it consists of more or less of the lining membrane of the uterus. Various theories have been

FIG. 193.—Sketch of a dysmenorrheal membrane as seen under water.

advanced to account for this process, but none of them have been fully established. Dr. Williams, of London, contends, as do many others, that "the whole, or a large amount of the mucous lining of the body of the uterus is cast off at every period. In health this is accompanied by a fine disintegration, giving rise to no pain or visible phenomena. Under certain as yet obscure con-

ditions, however, disintegration of the mucous coat does not take place, though expulsion does."

Dr. Oldham claims "that at some time during the intermenstrual period, the entire lining membrane of the uterus is lifted from its base and separated, so as to be ready for extrusion at one of the next menstrual crises." How this is accomplished, and,

FIG. 194.—A dysmenorrheal membrane laid open.

why it occurs in only a small number of women and not in others, is still unknown, but it is generally supposed to result from inflammation or congestion. Scanzoni attributes it to "a considerable hyperæmia of the wall of the uterus, which is followed by an excess in the development of the mucous membrane." Simpson attributes it "to an exaggeration of a normal condition, or to an exalted degree of a physiological action." It has also been claimed that the membrane was deciduous in its character, the product of an abnormal conception, but as it occurs in women who have never had sexual intercourse, this theory has been discarded. Winckel, who is one of our most recent and reliable authorities, says that, "the membrane shows the changes characteristic of endometritis; therefore, the term *endometritis dissecans*, is not inappropriate." Dr. Winterburn says that, "it should be noted that the membrane thus thrown off is not the product of the present catamenial epoch, but of the preceding one."

Winckel thus describes the anatomical appearance of the membrane: (1) "These membranes show a smooth reddish inner sur-

1) Op. Cit., p. 488.

face upon which the orifice of the utricular glands may be seen by the naked eye, and an external rough uneven surface, which appears as though torn from its connections, and it occasionally contains small blood clots. It is of unequal thickness, is usually very thin and almost transparent at the points where the walls join each other, and somewhat thicker at those portions where the mucous membrane has not been uniformly exfoliated. In many cases the discharged membrane is a complete sac containing three openings corresponding to the os uteri and the orifices of the tubes. Sometimes this exfoliative endometritis is associated with an exfoliative colpitis; large pieces of membrane, consisting of nucleated pavement epithelium, are discharged, and these are followed by tenacious fibrinous portions like those thrown off after the application of a concentrated solution of alum; yet, I have seen such a colpitis dissecans occur in a virgin who had not used injections."

The microscope shows an excess of round small cells and fibrillated tissues, the former being easily differentiated from the large irregular cells of a decidual membrane.

SYMPTOMS.—The symptoms vary much in intensity in different individuals, in some the membrane being discharged regularly with but little pain. Ordinarily the period is introduced by slight pains which gradually increase in intensity, until they become violent and expulsive, like the pains of abortion, and cease only when the membrane has been expelled, which is usually on the second or third, or more rarely, on the fourth day. The flow is not always profuse, being sometimes quite scanty, and not infrequently the membrane plugs up the cervix so that the blood is retained, and is discharged in clots after the expulsion of the membrane. The time between the periods is usually free from pain, but the patient usually feels weak and miserable, and may complain of various symptoms which are the result of existing complications.

DIAGNOSIS.—The nature of the pains and their regularity with each menstrual period, together with the character of the membrane expelled, are usually sufficient for diagnosis, but it may be necessary to submit the latter to a microscopical examination in order to differentiate either from an early abortion, or, less often, blood-casts or fibrinous moulds of the uterus, or exfoliations of the vaginal mucous membrane, or the exudations of diphtheritic endometritis.

PROGNOSIS.—This is usually considered unfavorable, though if treatment be commenced at an early stage a cure may be effected. The disease is not dangerous to life, though it may become associated with complications that are sometimes fatal. Sterility is a usual consequence of membranous dysmenorrhea, but cases are reported where conception has occurred in advanced stages of the disease.

TREATMENT.—The hygienic measures already suggested for neuralgic dysmenorrhea should, to some extent at least, be applied in this variety. From our present knowledge of the pathology of this disease it is impossible to deny that some dyscrasia is at its foundation, which may be partially overcome by a proper attention to the diet and habits of the patient. By some it is claimed that the disease occurs only in persons of a rheumatic diathesis, and if so, it is especially necessary that the patient be protected from atmospheric changes. She should wear flannel next the skin continually, and so far as possible enjoy the benefits of a mild, dry and even climate.

Relief is sometimes obtained by having the patient anticipate the period a few hours by going to bed and applying heat to the abdomen, sacrum and extremities.

Various methods of treatment, such as dilatation of the uterine cavity, discission of the cervical canal, cauterization of the uterine mucous membrane, curetting the uterus, scarifying the mucous membrane, and the application of leeches have been resorted to by old-school authorities with negative results. Dilatation of the cervix with tents often affords relief. On this point Dr. Ludlam says (1): “Very decided benefit may sometimes be derived from the employment of the sponge tent, with a view to dilate and remove any obstruction of the cervix which prevents the free escape of the menstrual blood. This would cause the womb to disgorge, unload its capillaries, relieve the hyperæmia, avert an excessive hypertrophy of the mucous membrane, and possibly prevent its exfoliation. Moreover—and it is by no means an inconsiderable thing—this dilatation greatly mitigates the sufferings of the patient.”

The remedies most often used are:—Borax, Bromine, Bryonia, Calcarea carb., Cantharis, Caulophyllum, Iodium, Rhus tox., Colchicum, Collinsonia, Kali iod., Phosphorus, Gelsemium, Secale, Ustilago. For the nervous and other concomitant symptoms that may arise, many other remedies may be indicated. See indications at the end of this chapter.

4. OBSTRUCTIVE DYSMENORRHEA.

DEFINITION.—A variety of dysmenorrhea dependent upon a partial or complete closure or obstruction of the genital canal, causing an impediment to the free escape of the menstrual discharge which collects above the obstruction and is only expelled by violent spasmodic pain. The obstruction most often exists in the cervical canal or at the os, but it may be in the vagina or at the vulva.

1) Op. Cit., p. 233.

ETIOLOGY.—The causes of obstructive dysmenorrhea are:—Atresia of the cervix or vagina, congenital or acquired; atresia of the hymen; stenosis of the cervix, congenital or acquired; flexion or version of the uterus, the former creating an angle in the canal, the latter less often causing obstruction by firm pressure of the os against the vaginal wall; fibroid tumors in the cervix, causing distortion of the canal; uterine polypus obstructing the cavity or neck, often acting as a ball valve at the os internum, preventing the egress of fluids, but allowing the passage of a probe.

SYMPTOMS.—No symptoms are manifest until a sufficient amount of blood has accumulated within the uterus to cause distension, when spasmodic contractive pains are excited for the purpose of overcoming the obstruction. The pains gradually become more and more severe, the expulsive efforts resembling those of abortion, though more painful. Finally a discharge of more or less blood results and the pains are relieved until the accumulation has again taken place, when the process is repeated. The flow sometimes comes drop by drop, but more often the uterine contractions are followed by gushes, the blood being frequently clotted, the clots sometimes corresponding in size and shape to that of the uterine cavity.

In many cases, especially if they have existed for a length of time, more or less reflex symptoms are present. Vomiting is quite a common symptom, which is often obstinate and painful in character. There may also be indigestion, rectal and vesical tenesmus, and nervous disorders, such as insomnia, chorea, hysteria, cramps, and even convulsions.

DIAGNOSIS.—Ordinarily the character of the pain and the regularity of its occurrence at each menstrual period will establish the nature of the case, but a positive diagnosis rests alone on a physical examination. The presence of an obstruction must be demonstrated beyond a doubt. This is accomplished chiefly by the touch and the sound, though a bi-manual or rectal examination, or even the speculum, may be necessary.

PROGNOSIS.—This depends chiefly upon our ability to overcome the mechanical obstruction. In some cases, however, the general state of the health resulting from persistent menstrual derangement is such that the prospects for an ultimate radical cure are less hopeful.

TREATMENT.—The administration of remedies which accomplish so much in other varieties of dysmenorrhea, is of little use here. The obstruction which gives rise to the trouble being purely mechanical in its nature, the treatment is necessarily surgical in character, though the pain may sometimes be temporarily relieved, or the constitutional or concomitant symptoms ameliorated

by the use of the indicated remedy, or, by proper hygienic measures. In some instances the patient finds by experience that she obtains some relief by assuming and maintaining a certain position. This usually occurs when the trouble arises either from flexion or uterine distortion from a fibroid tumor.

The surgical treatment of the various conditions which give rise to obstructive dysmenorrhea are fully considered elsewhere in this work under their respective heads, to which the reader is referred.

THERAPEUTICS OF DYSMENORRHEA.

ACONITE.—Congestive dysmenorrhea; high fever; abdomen swollen, hot and sensitive to the touch; vomiting; great restlessness and anxiety; pelvic inflammations.

AMMONIUM CARB.—Cholera-like symptoms at the commencement of the menses; blood black and clotted; acrid; making the thighs sore; especially in nervous delicate women.

AMMONIUM MUR.—Discharge of a quantity of blood from the bowels at every catamenial period; during the flow the discharge at night is more profuse.

APIS.—Congestive or neuralgic dysmenorrhea from ovarian influences; enlargement of the right ovary, which is sensitive and painful; also with pain in the left pectoral region, with cough; sharp plunging or stabbing pains in the uterus, or in the head, sometimes followed by convulsions, at every menstrual period, the patient feeling tolerably well during the interval; scanty, dark urine; waxy skin.

ASCLEPIAS COR.—Dysmenorrhea associated with dropsy; or catarrhal conditions; intermittent, bearing-down, labor-like pains.

BELLADONNA.—Congestive dysmenorrhea in plethoric women, especially girls, or, when associated with local pelvic inflammations; rush of blood to the head; throbbing headache; full bounding pulse; abdomen hot, painfully distended and sensitive to the touch or jarring; great pressing downward in the genitals, as if they would protrude through the vulva.

BORAX.—Membranous Dysmenorrhea.—Menses too early, too profuse, and attended with colic and nausea.

BROMIUM.—Membranous dysmenorrhea; violent contractive spasms during the menses, lasting for hours, leaving the abdomen sore; loud emissions of flatus from the vagina.

BRYONIA.—Membranous dysmenorrhea, or, when associated with rheumatic symptoms; distension of the abdomen, and colic; profuse flow; stitching pains, worse from the slightest motion.

CACTUS.—Excruciating, agonizing pain in the lumbar region during the menses, sensation of painful constriction in the groins,

extending around the pelvis; flow scanty, ceasing when lying down; acute pains and sensations of constriction about the heart.

CANTHARIS.—Membranous dysmenorrhea; burning in the vulva and ovarian region; itching in the vagina; vesical tenesmus and painful urination.

CAULOPHYLLUM.—Congestive or neuralgic varieties; also obstructive from retroflexion or retroversion; spasmodic pains in the uterus and various portions of the hypogastric region; congestion and irritability of the uterus; fullness, heaviness and tension in the hypogastric region; scanty flow.

CHAMOMILLA.—Drawing from the sacral region forward; griping, pinching, or labor-like pains in the uterus, followed by discharge of large clots of blood; tearing pains in the legs; very sensitive to pain; nervous and irritable.

CIMICIFUGA.—All things considered, this is our most valuable remedy in all varieties of dysmenorrhea. It is especially useful in congestive or neuralgic forms, when occurring in nervous, hysterical or rheumatic women; lancinating shooting pains in the uterine and ovarian regions; bearing-down in the uterine region and small of the back; excruciating pains in the abdomen, small of the back and limbs; nervous headache; hysterical spasms; scanty flow; between the periods debility, nervous crethism, neuralgic pains.

COCCULUS.—Neuralgic dysmenorrhea in nervous, hysterical women; cramps in the abdomen; colic pains; faintness and debility; nausea; convulsions.

COLLINSONIA.—Obstructive or other forms of dysmenorrhea resulting from hemorrhoids or constipation; pruritus; displacements.

GELSEMIUM.—Neuralgic, congestive, and what has been termed by some authors, spasmodic dysmenorrhea; severe, sharp, labor-like pains in the uterine region, extending to the back and hips, dull aching in the lumbar and sacral regions; neuralgia of distant parts; cramps in the abdomen and legs; convulsions.

HYOSCYAMUS.—Extreme nervousness, even to mania, or hysterical spasms; during the menses convulsive trembling of the hands and feet; headache, nausea and profuse sweat; labor-like pains in the uterus, with pulling in the loins and small of the back; involuntary loud laughter and silly actions; lascivious, uncovers and exposes herself.

IGNATIA.—In nervous, hysterical women who sigh and brood over imaginary troubles; violent labor-like pains, followed by discharge of black clotted blood of a putrid odor.

KALI BROM.—Very nervous, restless and sleepless; neuralgic form from ovarian or uterine irritation; obstructive form from subinvolution or fibroids.

KALI CARB.—Cutting, stitching pains in the abdomen ; aching in the small of the back ; uterine spasm ; menses acrid, of a bad odor, excoriating the thighs ; especially useful after loss of fluids or vitality, especially in anæmic persons.

KALI IOD.—When occurring in mercurial, syphilitic or scrofulous subjects, or when associated with or arising from chronic rheumatism ; frequent urging to urinate when the menses appear ; tearing, darting pains in the limbs ; painful bloating of the abdomen ; subsultus tendinum ; always worse at night.

LACHESIS.—Labor-like pains and sharp pains in the left ovarian region and in the uterus, relieved when the flow begins ; the uterus will not bear the contact even of the bedclothes, which cause uneasiness, but not pain.

LILIUM TIG.—Neuralgic dysmenorrhea, or dysmenorrhea from displacement ; bearing-down, with sensation of heavy weight and pressure in the uterine region, as if the whole contents of the pelvis would press out through the vagina ; severe neuralgic pains in the uterus and ovaries ; sub-acute uterine inflammation ; sympathetic cardiac symptoms.

NUX VOMICA.—Contractive uterine spasms ; colic pains followed by the discharge of coagula ; pressure toward the genitals ; pain in the back ; nausea ; faintness ; constipation ; irritable, oversensitive, choleric patients.

PLATINA.—Painful sensitiveness and constant pressure in the region of the mons veneris and genital organs, with internal chills and external coldness, except of the face ; bearing-down and drawing pains in the abdomen ; spasms and screaming ; flow dark and clotted ; ovarian inflammation ; pruritus ; nymphomania ; hysteria.

PULSATILLA.—Heavy pressive pain in the abdomen and small of the back, as from a stone ; the limbs tend to go to sleep ; menstrual colic ; flow thick and black ; chilliness ; symptoms ever changing ; shifting pains ; nausea, especially mornings ; the patient peevish, fretful and inclined to weep.

SECALE.—The discharge black, fluid, very fetid ; expulsive pains ; colic ; spasms ; cold extremities ; cold sweat ; weak pulse and great prostration.

SENECIO.—Dysmenorrhea with urinary sufferings, tenesmus, heat and urging ; pain in the back and loins ; pale, weak, nervous, sleepless, hysterical ; catarrhal subjects.

SEPIA.—Dysmenorrhea from endometritis ; weakness and tired pain in the small of the back ; bearing-down and pressure in the uterine region ; leucorrhea before the menses, yellow, like milk ; excoriating ; like pus ; of bad smelling fluids ; displacements.

SULPHUR.—Long standing and obstinate cases in scrofulous subjects ; headache before the menses ; headache and nosebleed

during the menses; blood thick, dark, acrid, corroding, sour-smelling; yellowish, corrosive leucorrhea; burning in the vagina.

THUJA.—The congestive form, from ovarian inflammation: distressing burning pain when moving; she must lie down; much noisy flatus in the abdomen; vaginismus.

USTILAGO MAIDIS.—Membranous dysmenorrhea; the blood dark and clotted; constant aching distress in the uterus; burning in the ovaries.

VERATRUM ALB.—Dysmenorrhea, with vomiting and purging, or exhausting diarrhea and cold sweat; nymphomania before the menses.

VERATRUM VIRIDE.—The congestive variety; menstrual colic; intense cerebral congestion; strangury before the menses; convulsions.

VIBURNUM OPULUS.—This is one of our most promising remedies for dysmenorrhea; it relieves all cases of the congestive or neuralgic type, and sometimes membranous and obstructive also, but its action seems to be exhausted in about three months. Before the menses, severe breaking-down, drawing in the anterior muscles of the thighs; heavy aching in the sacral region and over the pubes; occasional sharp, shooting pains in the ovaries; pains make her so nervous she cannot sit still; excruciating, cramping, colicky pains in the lower abdomen and through the womb; pains begin in the back and go around, ending in cramps in the uterus. During the menses, nausea; cramping pain and great nervous restlessness; the flow ceases for several hours, then returns in clots; the flow scanty, thin, light-colored, with sensation of lightness of the head; faint when trying to sit up.

XANTHOXYLUM.—Neuralgic dysmenorrhea, especially in women of a spare habit and of a delicate, nervous temperament; ovarian pains extending down the genito-crural nerves. Dreadful distress and pain; headache; menses too early and too profuse; pains down the anterior part of the thighs.

CHAPTER LIII.

LEUCORRHEA.

SYNONYMS.—Fluor albus; Blennorrhea; Whites.

DEFINITION.—The term leucorrhea is used to designate any discharge from the genital canal other than blood.

Leucorrhea is but a symptom of an irritation or inflammatory disease of the genital tract, and as such has been referred to in previous chapters; yet, as a matter of clinical convenience, it will be considered separately from the morbid conditions which produce it.

VARIETIES.—Leucorrhea may be distinguished both anatomically and clinically as (1) vulvar, (2) vaginal, (3) cervical, and (4) uterine.

1. *Vulvar leucorrhea* occurs chiefly in children, but is also present in aged women, especially associated with pruritus. In young children in whom the sebaceous glands are not yet developed, and in old women after the glands have atrophied, the discharge is serous or sero-purulent in character. At puberty and during the child-bearing period the sero-purulent discharge becomes mixed with the secretions of the vulvo-vaginal and sebaceous glands, rendering it viscid and unctuous, having a characteristic cheesy or fishy odor.

2. *Vaginal leucorrhea* occurs most often in young women, and consists of a white, creamy, purulent-looking fluid.

3. *Cervical leucorrhea* is most frequent during the child-bearing period. It is thick, tenacious and ropy, having the appearance of the unboiled white of an egg.

4. *Uterine leucorrhea* occurs mostly during the child-bearing period and resembles cervical leucorrhea, but is more watery and less dense and gelatinous in character, and is more often tinged with blood, or yellowish in color from the admixture of pus. Sometimes after the menopause a uterine leucorrhea occurs which consists simply of a thin, watery, unirritating fluid.

While these varieties are usually very readily distinguished for diagnostic purposes, yet not unfrequently do we find more than one variety present in the same patient, and it becomes necessary to examine the discharges microscopically to ascertain their respective character and proportions.

PATHOLOGY.—In a state of health there is poured out from

the glands and mucous lining of the genital canal, from the orifice of the vagina to the termination of the Fallopian tubes, a secretion sufficient to lubricate the opposed surfaces of the mucous membrane. This may at times become physiologically increased, as before or after menstruation, during sexual intercourse, or during parturition.

So, also, women suffer from a temporarily increased discharge, the result of causes which produce temporary congestion of the mucous membrane, such as cold, fatigue or exhaustion, but the effect, with the cause, soon passes away, and can scarcely be considered as pathological; but when the increase takes place from abnormal stimuli, and constitutes a permanent fluid discharge from the genitals, it is pathological, and is known as leucorrhea. This is essentially a catarrh, and, as a nasal or bronchial catarrh may result from a moderate degree of vascular excitement or inflammation of their respective mucous surfaces, so does leucorrhea signify a similar condition of the mucous lining of the genital tract. But, as in other catarrhs, its presence is not invariably an evidence of inflammatory action, but may result from congestive disturbances which do not fully approach an inflammatory state. It is not unusual to find leucorrhea associated with catarrhal conditions of other parts, especially in persons of a scrofulous habit, all the mucous tracts of the body being apparently involved in the catarrhal disturbance. In other cases leucorrhea will alternate with catarrhal discharges from other parts, becoming aggravated as soon as such discharges cease, whether the cessation be due, as in some instances, to local medication, or to other causes. Fritsch claims that vaginal leucorrhea cannot be a catarrh "because the so-called mucosa is no mucous membrane, but an epidermis, and contains no organs secreting mucus." Nevertheless, the existence of a vaginal mucus is too well established to be successfully contradicted, and indeed, recent pathology recognizes a catarrh of the epidermis—eczema.

The characteristics of the leucorrheal discharge vary according to the location from which it is secreted, not only in its general appearance, as has already been noted under the previous heading, but also in its microscopical and chemical analysis.

Vulvar leucorrhea is chiefly sebaceous in character, and is nearly always mixed with vaginal mucus.

Vaginal leucorrhea has an acid reaction and shows under the microscope, according to Dr. Tyler Smith, the following elements:—plasma; scaly epithelium; pus-corpuscles; blood-globules and fatty matter.

Cervical and uterine leucorrhea has an alkaline reaction, and shows under the microscope:—plasma; mucous corpuscles; altered cylindrical epithelium; pus-corpuscles; blood-globules and fatty matter.

According to Dr. Barnes we may summarily describe the distinguishing characters of these varieties as follows:—vulvar, sebaceous; vaginal, epithelial; uterine, mucous.

Wherever a breach of surface has taken place from ulceration or other causes, pus may be found in proportion to the extent of the lesion.

ETIOLOGY.—Any causes which produce pelvic congestion also tend to produce an exaggeration of the normal mucous secretion of the genital canal. Often these cases are of a comparatively trifling nature. This is evident from the great frequency of the disease, which has been known since the earliest times, having been mentioned by Hippocrates and other ancient writers, and which constitutes the most common disorder of the female generative organs, few women having been entirely exempt from it, though in many instances the cause is so trifling and the departure from the physiological so slight, that the condition can hardly be said to constitute either a disease or a symptom.

Causes may be distinguished as predisposing and exciting. The *predisposing causes* are those belonging to some constitutional diathesis, being either strumous, tuberculosus, syphilitic, gouty or rheumatic, and also the blood states of anæmia or chlorosis.

Exciting causes may be distinguished as congestive or non-inflammatory, and inflammatory.

Congestive or non-inflammatory causes:—Sub-involution; lacerated cervix; deranged menstruation; foreign growths, fibroids, polypi, etc.; prolonged laceration; congestion and parturition; abortion; excessive sexual indulgence; uterine displacements; traumatic influences; pessaries; efforts to prevent conception, cold water injections, etc.; irritating injections.

Inflammatory causes:—Endometritis, cervical or corporeal, invariably causes leucorrhea; vaginitis, simple or specific; syphilitic ulcerations; foreign growths, fibroids, polypi; all inflammatory conditions of the uterus and its appendages.

In both categories may be included exposure to cold, which may result in simple congestion, or give rise to true inflammation. When we remember that leucorrhea is essentially a catarrh, analogous to that occurring in the nose and elsewhere, we may readily understand why cold, which is the chief etiological factor of catarrh of any mucous surface, may also be a frequent cause of leucorrhea.

The leucorrhea of children, either vulvar or vaginal, results from either the migration of worms from the rectum, from uncleanliness, from exposure to cold by sitting on damp ground or cold objects, such as stone steps, etc., or from masturbation.

SYMPTOMS.—The subjective symptoms are mostly those which result directly from the existing causes rather than from the dis-

charge itself, though instances undoubtedly arise where irritating and long-continued leucorrheal discharges give rise to symptoms which are of the same nature as those which result from any long-lasting discharge or debilitating influence. The most constant symptom of leucorrhea is a pain in the back and loins, which is always worse from active exercise, such as walking or riding. These symptoms are always more intense in uterine leucorrhea, and are more apt to be associated with symptoms of an inflammatory character, than when resulting from vaginal leucorrhea. Uterine leucorrhea is more related to the menstrual functions, being usually aggravated immediately before and after the flow. The excoriations liable to arise from an excessively acrid discharge are also symptomatic.

DIAGNOSIS.—It is quite easy to diagnose the presence of leucorrhea, but it is more difficult to ascertain its nature and discover the cause which produces it. Frequently, in order to accomplish this, it is necessary to test the chemical reaction of the discharge by means of litmus paper, and also to examine with the microscope to ascertain the character of its distinctive elements. (See pathology.) If the secretions of the uterus and vagina become mixed so that an examination is difficult, the method recommended by Schultze for diagnosing between uterine and vaginal catarrh may be adopted. The vagina is douched out in the evening, and a tampon soaked in a solution of tannin is placed against the os externum; in the morning the tampon is removed through the speculum, and we note the quantity and character of the discharge which has accumulated upon it. Ordinarily the history of the case and the physical appearances of the discharge are sufficient for diagnostic purposes, so far as the leucorrhea is concerned, but in most instances a thorough knowledge of the pathology of the case can only be ascertained by a careful physical exploration.

PROGNOSIS.—This is usually favorable, but depends entirely upon our ability to discover and remove the cause.

TREATMENT.—The constitutional or symptomatic treatment of leucorrhea is of the greatest importance, though local treatment in many cases should not be disregarded. It must be continually borne in mind that leucorrhea is itself but a symptom either of some constitutional dyscrasia, or of some local exciting cause. In the former case the treatment should be exclusively constitutional, though simple douches of hot water, or of salt and water, for purposes of cleanliness and antisepsis, are not to be overlooked. Such cases, however, can only be cured by appropriate constitutional treatment. On the other hand, leucorrhea that results from vaginitis, or endometritis, or other local diseases, may require such

local treatment as has already been recommended in those affections. As a general prescription for a local medicament in all cases regardless of the cause, where for any reason local treatment is desirable, there is nothing better than the following :—

Fluid Hydrastis $\mathfrak{z}\text{i}$;
 Fluid Calendula $\mathfrak{z}\text{i}$;
 Glycerine $\mathfrak{z}\text{vi}$. Mix.

Sig. One tablespoonful in half a teacup of warm water used as an injection once a day.

The same preparation can also be used on a cotton tampon, if desirable. In case the discharge is foul-smelling, a few drops of Carbolic Acid may be added.

Daily injections of hot water are often of great value. Tepid salt-water is the simplest and one of the most efficient douches for ordinary catarrhal leucorrhea. Its value has long since been demonstrated in nasal catarrh, and it is equally useful here. Hamamelis diluted with tepid water acts well in many cases. Astringent washes are not needed, and should not be employed. They may check the discharge temporarily, but in the end they are productive of harm.

If the leucorrhea results from displacement or from foreign growths within the uterine canal, these must receive the usual treatment before remedies can be expected to do any good. When a constitutional diathesis is present, or the patient has become debilitated, much attention should be paid to the use of such hygienic measures as will assist in restoring the vigor and tone of the system. A nourishing diet, fresh air and sunshine, gentle exercise, appropriate bathing, etc., are indispensable. In most cases sexual intercourse should be avoided, or indulged in to only a limited extent. Almost any remedy in the materia medica may be indicated in leucorrhea, together with the pathological states which give rise to it. It is therefore important that each individual case be carefully studied, and the remedy selected that will nearest cover the totality of the symptoms.

I will give the chief indications for a few of the most important remedies:

THERAPEUTICS OF LEUCORRHEA (INCLUDING VULVITIS, VAGINITIS, AND ENDOMETRITIS).

ACONITE.—Acute simple vaginitis. Vagina dry, hot and sensitive; painful urging to urinate; urine scanty and scalding hot; sometimes retention of urine.

ÆSCULUS.—Thick, dark, corroding leucorrhea, with aching and lameness in the back across the sacro-iliac articulations.

ALUMINA.—Profuse, transparent, acrid leucorrhea, running

down to the feet during the day; burning in the genital organs; parts inflamed and corroded, making walking difficult; relieved by washing with cold water.

AMMONIUM.—Leucorrhea like white of eggs; brown, slimy, unpainful, after urination.

ARSENICUM ALB.—Leucorrhea profuse, yellow, thick, corroding. Thin, whitish, offensive discharge, instead of the menses; especially in cachectic women; emaciated; weak, even slight effort fatigues; burning pains in the pelvis; carcinoma; vulvitis.

BELLADONNA.—Acute endometritis; cervix sensitive, swollen and red; burning pressure, weight and throbbing pain in the uterine region.

BORAX.—Leucorrhea like the white of an egg, with sensation as if warm water were flowing down; white, thick as paste; leucorrhea occurring just midway between the menstrual periods.

BOVISTA.—Leucorrhea a few days before or a few days after the menses, like the white of an egg, when walking; flowing only at night.

CALCAREA CARB.—Leucorrhea like milk, with itching and burning; inflammation and swelling of the genitals; impaired nutrition; leuco-phlegmatic temperament; girls who are obese, but not muscular; scrofulous or tubercular diathesis.

CALCAREA PHOS.—Leucorrhea like the white of an egg; girls at or near puberty; strumous diathesis.

CANTHARIS.—Acrid, burning leucorrhea; swelling and irritation of the vulva; violent itching in the vulva; pruritus with strong sexual desire; painful urination.

CARBO VEG.—Leucorrhea thin, in morning on arising, not through the day; milky; excoriating; red sore places on the pudenda; aphthæ; itching; sore and raw; varices of the vulva.

CHAMOMILLA.—Leucorrhea acrid, watery, yellow, smarting; patient irritable and cross.

CINCHONA.—Leucorrhea instead of or before the menses, with spasmodic uterine contractions; great debility; sensitive to pain and to draughts of air; malarial cachexia.

CIMICIFUGA.—Said to be especially useful in endocervicitis when occurring in nervous, neuralgic or hysterical patients; irregular or painful menstruation; uterus and ovaries enlarged and sensitive.

COCCULUS.—Leucorrhea in place of the menses, like serum, mixed with a purulent ichorous liquid; painful pressure in the uterus, with cramps in the chest, nausea and fainting; hysteria.

CONIUM.—Leucorrhea, with weakness and paralyzed sensation in the small of back, before the discharge; thick, milky, with contractive, labor-like pains, coming from both sides; of white

acid mucus, causing burning; carcinoma; severe itching deep in the vagina.

ERIGERON.—Leucorrhea profuse, with spasmodic pains, and irritation of the bladder and rectum.

FERRUM.—Leucorrhea mild, milky or corrosive, causing itching, with soreness; great weakness and emaciation; nervous; easily fatigued; erethistic chlorosis; weak; very red face.

FERRUM IOD.—Leucorrhea like boiled starch; when the bowels move the discharge is stringy; itching and soreness of vulva and vagina; parts much swollen; displacements; scrofulous subjects; chlorosis.

GRAPHITES.—Profuse leucorrhea of very thin white mucus, with weakness in the back; discharge occurs in gushes day or night; menses too late, scanty and pale.

HAMAMELIS.—Leucorrhea with much relaxation of the vaginal walls; profuse discharge, constituting a drain on the system as severe as a bleeding; passive hemorrhages.

HELONIAS.—Leucorrhea associated with general atony and anæmia; sensation of soreness and weight in the womb, a “consciousness of a womb;” deep, undefined depression, and melancholy.

HYDRASTIS.—Leucorrhea tenacious, ropy, thick, yellow; erosions of the os, cervix, vagina; pruritus vulvæ, with profuse leucorrhea; sexual excitement.

IODIUM.—Leucorrhea acid, corroding the limbs; worse at time of menses; induration and swelling of the uterus or ovaries.

KALI BICH.—Leucorrhea yellow, ropy; pain and weakness across the small of back, and dull, heavy pains in hypogastrium; suitable to fat, light-haired people.

KREASOTUM.—Leucorrhea of a yellow color, staining linen yellow, with great weakness; white leucorrhea having the odor of green corn; leucorrhea excoriating, causing soreness between the pudenda, also between the thighs and pudenda, with burning, itching pains; violent itching of the labia, also of the vagina, obliged to rub the parts; external genitals swollen, hot, hard, and sore.

LACHESIS.—Green or thick yellow leucorrhea between or just before menses; chilly at night, with flashes of heat in daytime; congestion of the womb, with prolapsus; great prostration, especially when exercising or lifting; tendency to fainting in nervous women; cannot bear any pressure, nor even her clothes, upon the uterine region; scanty menses, with increased leucorrhea; especially suitable for cases at the menopause.

LILIUM TIG.—Leucorrhea bright yellow, acid, excoriating, leaving a brown stain; displacements; ovarian irritation; hysteria; sympathetic heart symptoms.

LYCOPodium.—Leucorrhea like milk; bloody; corroding;

sensation of dryness in vagina; burning during and after coition; discharge of wind from the vagina.

MAGNESIA MUR.—Uterine spasms, followed by leucorrhea: leucorrhea after every stool; profuse discharge of a watery, thick mucus from the vagina; scirrhus induration of the uterus.

MERCURIUS SOL.—Leucorrhea always worse at night; greenish discharge; smarting, corroding, itching, burning after scratching; purulent leucorrhea; vaginitis; prolapsus of vagina; cases of vulvitis; rawness, smarting and excoriated spots; gonorrheal or syphilitic origin.

NATRUM CARB.—Leucorrhea thick, yellow, putrid, ceasing after urination.

NATRUM MUR.—Leucorrhea profuse, of a greenish color. worse while walking; corrosive itching of genitals; delayed and scanty menses, with headache, yellowness of the face; chlorotic, cachectic patients, with sallow skin, frequent palpitation, fluttering of the heart, and oppression of the chest.

NITRIC ACID.—Leucorrhea offensive; green mucus; cherry colored; flesh colored; excrescences on cervix uteri; itching on the pudenda; syphilitic ulcers in the vagina and on os uteri, burning and itching.

NUX MOSCHATA.—Leucorrhea in place of menses; flatulent distension of the uterus; hysteria; fainting, with palpitation of the heart, followed by sleep.

PHOSPHORUS.—Acrid, excoriating leucorrhea; amenorrhea with chlorosis; leucorrhea from onanism; scanty menses; carcinoma; suitable for tall, slender women of a tubercular habit.

PHOSPHORIC ACID.—Profuse yellow leucorrhea, mostly after menses; meteoristic distension of the uterus; leucorrhea from debilitating influences or onanism; in young girls who are growing too fast.

PHYTOLACCA.—Uterine leucorrhea, proceeding from the glandular portion of the cervix; ulceration of the os uteri; scirrhus and cancer.

PLATINA.—Leucorrhea like albumen, only in the daytime. without sensation, particularly after micturation, or after rising from a seat; painful pressing toward the genital organs, as if the menses would make their appearance; voluptuous tingling in the pudenda and abdomen, with oppressive anxiety and palpitation of the heart; induration of the uterus; cramp and stitches in the indurated womb; scirrhus of the uterus; hysteria, with great depression of spirits and melancholia from uterine disease.

PODOPHYLLUM.—Leucorrhea of thick, transparent mucus; prolapsus uteri, with aching and bearing-down pains; sensation as if genitals would come out during stool.

PULSATILLA.—Leucorrhea thick, like cream or milk, with swol-

len vulva; painless; acrid, thin, burning; first menses delayed; or menses suppressed, with abdominal cramps; pain in small of back; sandy hair, blue eyes, pale face, inclined to silent grief and submissiveness.

RHUS TOX.—Erysipelatous inflammation of the external genitals; eczema of the vulva, vesicles and crusts, with burning and itching; soreness and pain in the vagina.

SABINA.—Leucorrhea thick, yellow, fetid, after suppressed menses; suitable to plethoric women with profuse menstruation.

SANGUINARIA.—Leucorrhea fetid, corrosive, at and after the menopause; flushes of heat; ulcerations and erosions of os uteri.

SENECIO.—Leucorrhea instead of the menses, or with urinary troubles; deranged menstruation.

SEPIA.—Leucorrhea yellow, like milk, excoriating, like pus; of bad-smelling fluids; before the menses; great dryness of vulva and vagina; painful to touch; coition very painful; prolapsus uteri; sensation as if everything would come out of the vagina, has to cross her limbs to prevent it; pain in back and small of back; painful sensation of emptiness in stomach and abdomen; face pale or yellowish; especially suited to women with dark hair, and particularly during pregnancy, child-bed, and while nursing; our most valuable remedy in chronic cases.

SILICEA.—Profuse, acrid, corrosive leucorrhea; pressing-down feeling in vagina; itching, burning, and soreness in the vulva; increased menses with repeated paroxysms of icy-coldness over the whole body; want of vital heat, even when taking exercise.

STILLINGIA.—Copious muco-purulent leucorrhea, with rheumatic pains, in syphilitic or rheumatic patients.

SULPHUR.—Profuse yellowish, corrosive leucorrhea; burning in the vagina, is scarcely able to keep still; papular eruptions on genitals; pruritus; obstinate chronic cases, especially in scrofulous subjects.

SULPHURIC ACID.—Leucorrhea acrid or burning, or like milk; discharge of bloody mucus from the vagina, as if the menses would set in.

THUJA.—Profuse mucus discharge; sycotic excrescences, moist, bleeding and offensive; biting and itching in the genitals.

TRILLIUM.—Profuse, exhausting, yellowish leucorrhea with atony, prolapsus, and chronic engorgement of the cervix; fetid discharges from uterus and vagina.

VIBURNUM.—Leucorrhea thin, yellow-white, or colorless, except with the stool, when it is thick, white, blood-streaked; dysmenorrhea.

ZINCUM.—Leucorrhea of thick mucus; bloody mucus; excoriating after the menses; pruritus vulvæ; nervous and anæmic; great exhaustion; nervous, fidgety moving of the feet.

CHAPTER LIV.

CHLOROSIS.

SYNONYMS. — Chloro-anæmia; Spanæmia: Green-sickness; Cachexia virginum.

DEFINITION. — A special form of anæmia, peculiar to the female sex, and usually occurring in connection with disordered menstrual function, or with the evolution of the reproductive organs at puberty.

ETIOLOGY. — The causes of chlorosis are predisposing, or constitutional and exciting. Age and sex are the most important predisposing causes, the disease almost invariably occurring in the female sex, and especially during the period of puberty. Cases of chlorosis in the male are extremely rare, and in women the disease very seldom occurs any length of time either before or after puberty. The lymphatic temperament and scrofulous diathesis are also considered as predisposing causes. Some authors hold that chlorosis is a neurosis of the sympathetic nervous system, and that its development is due largely to nervous causes, some of which may have been congenital. Other authors claim, that the disease is due to congenital malformations of the heart and blood-vessels. I am inclined to the opinion, however, that the disease is more often acquired than inherited. It occurs frequently in over-worked young girls in large cities, who are confined most of the time in poorly lighted and badly ventilated apartments, and whose food is deficient in both quantity and quality. On the other hand, the remarkable frequency of chlorosis in the higher classes is due to a lack of proper exercise, especially in the open air, a stimulating rather than a healthy, nourishing diet, irregular habits, and the influence upon the mind of pernicious literature, and not infrequently the habit of masturbation. So, also, do emotional causes play an important part; jealousy, disappointed love, grief, prolonged mental anxiety, ungratified sexual desire and home-sickness may excite the disease, or at least favor its development, as may also continued loss of sleep, and excessive mental application.

SYMPTOMS. — These are to a great extent the same as those of anæmia. The most striking symptom is the pale, greenish, almost transparent hue of the skin—a yellowish green tinge, which has given to the disease its popular designation of green-sickness.

Sometimes in blondes the skin is of a transparent white, while in the brunettes it is more of a dirty-gray or yellowish color. This symptom arises from a deficiency of the red corpuscles. There are occasional instances where the cheeks retain their redness, which is explained on the grounds of the distension of the capillaries with blood. The transient flush observed in almost all chlorotic persons when excited or heated arises from the same cause.

Subcutaneous fat is present in normal amount, which is not the case in anæmia associated with phthisis and other constitutional diseases. The patient is subject to difficulty of breathing, or want of breath, palpitation and fainting upon any unusual, even though moderate, exertion. The appetite and taste are impaired. Ordinary diet is rejected with loathing, and the patient craves acid fruits, pickles, vinegar, etc., or earthy substances, such as chalk, coal and slate-pencils.

The menstrual functions are always deranged, either a persistent amenorrhea or a watery discharge taking the place of the menstrual discharge, or the latter is scanty and occurs at irregular intervals. Some chlorotic subjects, especially girls of nervous excitable temperament, have menorrhagia. According to Virchow, amenorrhea is present when there is a retarded or imperfect development of the uterus and ovaries, and excessive menstruation when there is hyperplasia of these organs.

In those cases in which the deficiency of red globules is marked, a blowing sound, which extends along the arterial trunks of the neck, is heard at the base of the heart. "Where this deficiency is extreme there is commonly heard in the jugular veins that peculiar and characteristic noise known as the *bruit-de-diable*, or the German 'Nommengeräusch.' This sound gives not only precise diagnostic indication of the malady, but its intensity affords accurate estimate of its progress. In proportion as the quality of the blood improves under treatment the noise diminishes. It appears to be directly associated with the relative absence of the red globules. When these are present in due proportion the sound is no longer heard." (1)

In proportion to the extent of the anæmia murmur do we usually find vertigo, syncope, and sparks and spots before the eyes. Neuralgia, both central and peripheral, is nearly always present. Of the peripheral variety, prosopalgia is most frequent, and of the central, cardialgia. Sometimes hysterical symptoms are manifest, and the usual contradictory mental phenomena of that disease are present, mental depression usually predominating. The urine is pale and of low specific gravity, due to deficiency in

1) Barnes' Diseases of Women, p. 164.

coloring matter and urea. The whole system is disturbed, and symptoms of deranged function are liable to occur in any organ.

The condition of mind is quite similar to that arising from onanism. The patient dislikes society, avoids the male sex, and is shy and backward to a very noticeable extent.

PATHOLOGY.—The pathology of chlorosis has not been definitely ascertained. While it is altogether probable that the real *fons et origo* of chlorosis is in the sympathetic nervous system, nevertheless the pathological changes which have so far been discovered lie mainly in the blood, which, as Virchow says, may be regarded as a tissue consisting of cells with a liquid intercellular substance called serum.

These changes differ only in degree from those found in anæmia. Indeed, many authors do not treat of chloro-anæmia as a distinct condition, but consider these two disorders identical as to their pathology. Several French pathologists have of late years advanced the view that chlorosis differs from anæmia mainly in that the latter is merely a blood state, while the former is a disease of the nervous system, which may or may not produce this blood state.

The serum of the blood does not, according to Niemeyer, (1) “present any constant anomaly. Its composition is generally normal; more rarely there is a diminution of its albumin. In other cases, again, the amount of albumen of the blood-serum seems to be increased, so that, besides the oligocythæmia, there is hyperalbuminosis. In the first two instances, the whole volume of the blood is probably reduced, while in the latter the possibility cannot be denied that, in spite of the diminished number of the blood-corpuscles, the absolute bulk of the blood is augmented, adding a serous plethora to the oligocythæmia.

“In pronounced chlorosis, the disease in the red blood corpuscles may be so great that a thousand parts of blood cells may contain but sixty or forty parts of dried blood cells, instead of the normal average of one hundred and thirty parts.

“Upon the autopsy of a chlorotic person, who has died of intercurrent disease, the viscera are all found to be remarkably pale. In some cases, the signs of simple fatty degeneration are found in the tunica intima of the great vessels.”

DIAGNOSIS.—Chlorosis may be complicated by hysteria, hypochondriasis, hypertrophy of the heart and tuberculosis. It is sometimes difficult to positively exclude one or the other of these diseases in forming a diagnosis. It may also be difficult to differentiate from other forms of cardiac disease; tubercular peritonitis, and especially from pure anæmia.

1) Practical Medicine, Vol. II, p. 803.

From all these organic lesions a diagnosis cannot at once be positively established, but by repeated physical examinations and careful watching we can, after a time, arrive at the truth. Sometimes chlorosis gradually develops a tuberculosis, and the physician should be constantly on the alert for such a change.

The history of the case will usually aid in deciding between chlorosis and anæmia, the latter always being secondary to wasting diseases, hemorrhages or mal-nutrition. In hysteria the sclerótica is dull and humid, very different from the transparent hue found in chlorosis.

PROGNOSIS.—The course of the disease is usually slow, but unless serious complications exist the prognosis is good, though relapses very often occur. Chlorosis itself never endangers life, but it favors the development of other diseases which may prove fatal.

TREATMENT.—First of all should be considered the hygienic treatment of chlorosis, without which, in most cases, remedies will prove of little avail.

Cheerful and congenial society and surroundings; plenty of open air and sunlight; moderate and well regulated exercise, consisting of out-door games, walking, driving, playing ten-pins, tennis or croquet; sea-bathing; change of scenery, especially from city to country; all these are of the utmost importance. The food should be taken at regular intervals, and consist of an extremely nutritious diet, such as meat, game, fish, oysters, milk, eggs, etc.

When menstrual derangement is a prominent feature, hot baths, especially sitz-baths, should be employed daily. Electricity, too, is a valuable adjunct in the treatment of the disease.

I will give the indications for a few of the most important remedies in chlorosis.

FERRUM.—Iron is unquestionably homeopathic to chlorosis, and is, all things considered, our most valuable remedy. It is not to be used, however, without discrimination, as it has been by the old school for the past half century, and longer. The beneficial effects of iron in chlorosis and anæmia are not due, as is assumed by allopathic authorities, to the fact that it is supplied as a food to the blood, which is deficient in this constituent, for the lack of iron in the system is due to a failure in assimilation, and no matter how much iron is introduced, only a small quantity is assimilated and appropriated by the hungry tissues, the balance being eliminated by the intestines.

The only fair assumption possible is that iron owes its therapeutic virtues to the same essential dynamic agency possessed by other drugs, and its application is subject to the same therapeutic law. It should, then, never be employed except when thoroughly

indicated, otherwise it will do more harm than good. It is especially useful in delicate, nervous girls who have a very red face, and who flush easily and have epistaxis. Anorexia; vomiting; watery diarrhea; menses suppressed or watery; leucorrhea; weakness and consecutive disease of the heart; general weakness and emaciation; œdema; constant chilliness and evening fever, light hectic fever. Iron and Strychnia are strongly recommended by Dr. W. H. Holcombe, of New Orleans, and Dr. Ludlam, of Chicago.

CALCAREA CARBONICUM.—Very useful. Leuco-phlegmatic temperament; scrofula; disposition to cold and diarrhea; great weakness or curvature of the spine; vertigo on going up stairs; disgust for meat; craving for sour and indigestible things; after eating swelling of the stomach and palpitation of the heart; menses too often, too profuse, or wanting; leucorrhea; great shortness of breath; great muscular debility; walking wearies and makes the heart palpitate; sitting causes backache and headache, therefore constant inclination to lie down; hands and feet cold and damp; the fingers appear dead. Imaginary fears about the state of her health.

CINCHONA.—Malarial complications; after loss of fluids; great exhaustion; œdematous swellings; poor digestion; distension of abdomen; eructations; ringing in the ears; over-sensitiveness of nervous system; erythema.

PULSATILLA.—Weakness and sluggishness in the circulation; soft and irregular pulse, and palpitation of the heart; mal-assimilation, with signs of anæmia, such as dizziness when rising; amenorrhea, or scanty, slimy menses, which appear too late; patient feels better in the open air.

HELONIAS.—An excellent remedy when Iron seems to be the remedy but does not agree. Profound debility, as after severe acute diseases; amenorrhea marked by general atony; prolapsus uteri from want of muscular tonicity; loss of sexual desire and power, with or without sterility; mind exceedingly dull and inactive.

SEPIA.—Patient pale, delicate, sensitive to cold air; mental depression and indifference; prolapsus uteri; bearing-down in pelvis; leucorrhea; pain in back; amenorrhea.

IGNATIA.—Sensitive, nervous, and hysteric women, inclined to spasmodic and intermittent complaints, and where the trouble is induced by mental emotions, such as fright, grief, disappointed love.

ALETRIS.—Anæmic debility of chlorotic girls and pregnant women, suffering from slow digestion and flatulence; scanty, pale menses, or amenorrhea.

NUX VOMICA.—Hypochondriasis; dyspepsia; constipation; menorrhagia.

Also consult Arsenicum, Ferrum iod., Ferrum, Gelsemium, Phosphorus, Phosphorus ac., Platinum, Zincum.

CHAPTER LV.

HYSTERIA.

DEFINITION.—A peculiar and indefinable neurosis, dependent, in a great majority of cases, upon an irritation of the generative organs.

ETIOLOGY.—As has already been indicated hysteria is usually, possibly always, dependent upon some irritation of the genital organs, and is almost invariably intimately associated with some disorder of the menstrual functions. Fritsch says:—“Neither the occurrence of hysteria in children nor in old women speak against this view. In children it would have to be placed parallel to precocious menstruation; in old women we should be justified in assuming that through the prolonged abnormal nervous activity the functions of the peripheral nerves, as well as those of the central organs, have become pathological. The fact that hysteria has been found with perfectly normal genital organs has no weight nowadays; for in extirpated ovaries absolutely nothing was found that could be interpreted as pathological, although the gravest “hysterical” symptoms had completely disappeared after castration.

“The irritation leading to the reflex neurosis, to hysteria, is usually justly relegated to the ovary; for hysteria has been found with defect of the uterus. To be sure, in hysteria a number of symptoms are observed which are identical with certain subjective symptoms of pregnancy. In the same way, we have stated before that indications, at least, of hysteria occur almost invariably with dislocation of the uterus and with chronic perimetritis. But this furnishes no proof that the irritated uterus is likewise to blame for the hysteria, for during pregnancy changes occur in the ovaries which are also found in the circulatory disturbances and dislocations of the uterus.” (1)

Upon this point Dr. Emmett says: “Hysteria is supposed by many to be caused directly by ovarian irritation, but, while granting that hysteria and ovarian disorders generally coexist, I am not disposed to admit a necessary relation between them of cause and effect. Ovarian irritation, or defective action of the ovaries, and the different nervous manifestations all spring from defective action in the nerve centers, the result of faulty nutrition.

1) *Diseases of Women*, by Henry Fritsch, M.D., Wm. Wood & Co., p. 388.

“After a shock or morbid impression has been once made on nerve centers, it requires but a slight exciting cause to bring on, at any time, these nervous manifestations. Hysteria, therefore, may be associated with any or all of the uterine or ovarian disturbances having, as we have seen, the same cause, viz., defective nerve forces; and any local lesion or disorder may, by reacting on a susceptible nervous system, excite, at any time, the nervous manifestations.” (1)

Guernsey holds that hysteria bears the same relation to the nerves of the reproductive system as chlorosis does to those of nutrition, and that it has no exclusive connection with the uterus or other particular organs, more than chlorosis has with the stomach or other organs of digestion.

Notwithstanding this statement, however, Dr. Guernsey soon follows by saying that “the ovaries, as the center of the sexual system, must now be regarded as the real *fons et origo* of a majority of cases of hysterical affections.”

This theory of the origin of hysteria is not only borne out by the fact that in most instances pressure upon one or the other ovary will usually cause an aggravation of the hysterical manifestations, but also by the fact that cases have been observed in the male sex, simulating hysteria, which were always accompanied by symptoms of tenderness and irritation of the testicles. I have at the present time a case of this nature under treatment, a man thirty years of age, who has a variety of symptoms indicating nervous derangements, including the so-called “globus hystericus,” and who, were he of the opposite sex, would unquestionably be pronounced hysterical. He has considerable tenderness of the testicles, and slight pressure upon these is all that is required to cause positive aggravation of all his symptoms.

Heredity is the most prominent predisposing cause, though it is probable that a defective moral education by a hysterical mother, and the disposition of the child to imitate what it sees every day in its mother, partially accounts for the apparent influence of heredity.

Depressing mental influences intensify, as it were, the predisposition, the nervous taint. Also erroneous education, excessive coition, masturbation, sterility, impotence of the husband, and an unhappy marriage in other respects, are enumerated as of etiological importance.

Women frequently suffer from hysteria as a consequence of the exhaustion of the system due to lactation, menorrhagia or prolonged illness, or from other causes which have induced a condition of general malnutrition.

1) Principles and Practice of Gynecology, by Thomas A. Emmett, M.D., p. 184.

Fritsch says that "an explosion of hysteria is possible with every chronic gynecological affection." Prolonged irritation of the peripheral nervous regions lead to reflex neuroses.

SYMPTOMS.—The symptoms of hysteria, involving as they do every phase of nervous manifestation possible, both sensory and motor, defy any definite description. The peculiar mental disturbances of hysteria are well known. The rapid change of disposition is the most characteristic, a gay and lively mood rapidly alternating with depression, sadness and weeping. The emotional nature is completely unbalanced, and storms of emotional excitement are liable to occur from the slightest causes, and often apparently from no cause or pretext whatever. The least contradiction may excite outbursts of anger, fits of laughing and floods of tears. In her inordinate desire for sympathy, the hysterical patient almost invariably exaggerates her sufferings and often the greatest deceit is willfully practiced in order to secure the sympathizing attention of her family and friends. This is often carried so far that such persons have inflicted wounds on themselves, and irritated them until the conditions became dangerous to life, or amputation, even, was demanded. Frogs and worms, feces and urine, have been swallowed in order to excite interest by their subsequent emesis.

This mental condition is due to a defect in the higher reasoning powers. Upon this point Dr. Fellows says (1):—"Emotions and passions furnish rapid and intense impulsion to act, and when the highest power, which makes choice of action impossible, is absent or much weakened, and the person is left under the control of these impulses, the result must be a capricious and unstable character. Differing, and often directly opposite, emotions being constantly excited, the resulting acts from these impulses must be of infinite variety; and this is what we find in the hysterical condition. Hence we see that this lack of will is one of the great underlying factors of hysteria, though it may vary greatly in different cases and at different times. It may be so completely lacking that the person will be turned by every trifling emotion, as is the weather-vane by every gust of wind. Hence the motives of choice, which it is the province of reason to furnish, remain, as it were, only theoretical concepts, powerless to inhabit or control emotional, automatic, and reflex impulsion.

"The consciousness is often disturbed, or more or less in abeyance, perhaps completely so, in the gravest attacks of hysteria. But in very many instances where the woman is in an apparently unconscious state, the careful observer will appreciate the fact that she is quietly taking in all that is going on or that is being said about her. The wary practitioner will note this fact, and do

1) Arndt's System of Medicine, Vol. II, p. 774.

or say nothing in the presence of such a patient that he does not want her to know. At times he may avail himself of this opportunity to make statements in her presence with the intention that they shall re-act on her mentally." Accompanying these mental states there may be hallucinations, and even delusions with maniacal excitement, to an extent that it becomes difficult to diagnosticate the condition from one of real insanity. In fact, hysterical patients sometimes become insane, though this is the exception.

Erotism is not an unusual symptom, nymphomania usually occurring in women of a highly-wrought nervous organization and subject to hysterical phenomena. The sensory nerves are strongly affected, and give rise to sensations as varied in their character as are the mental manifestations. Hyperæsthesia and neuralgia are always present to a greater or less extent. There may be increased sensitiveness to touch over the whole body. Especially are the joints liable to be hyperæsthetic, particularly the knee and hip joints. This may even be swollen to such an extent that the case simulates arthritis. The neuralgic pains are usually temporary, and subject largely to mental influences. With great excitement, either of joy or sorrow, the most violent pains occur suddenly or disappear with equal abruptness. The typical headache, known as *clavus hystericus*, is a very intense pain, and is confined to a very small space, either in the occiput, in the region of the sagittal suture, unilaterally in the forehead, or in the eye-ball. Prosopalgia, toothache, intercostal neuralgia, sciatica and other varieties of neuralgia may be present. Often the neuralgia is located along the spine, giving rise to tenderness, thus simulating spinal irritation. A characteristic of the pain, wherever located, is that it becomes more intense in proportion to the attention paid to it and the amount of sympathy manifested by friends, whereas, on the other hand, whenever the attention is distracted, the pain is either ameliorated or entirely ceases.

Anæsthesia may be present, the sensitiveness to pain being usually diminished, while that to heat and touch remains. One half of the body may be affected, or isolated portions of skin, as the back of the hands and feet. Loss of the muscular sense prevents the patient, if the eyes be closed, from knowing what movements she has made. Anæsthesia of any of the mucous membranes may occur. The special senses are often impaired, amaurosis, deafness and disordered taste and smell being of no unusual occurrence.

In the motor sphere the symptoms are as protean as elsewhere, both convulsive and paralytic conditions being produced. Actual convulsions of an epileptic nature sometimes occur, giving a disease known as *hystero-epilepsy*, which has all the characteris-

tics of epilepsy, though associated with it are the various mental and sensory manifestations already noted. More often the convulsions are incomplete, and attack only certain groups of muscles, or perhaps amount only to a trembling and restlessness of the arms and legs, or slight clonic spasms of these or other parts.

The so-called "globus hystericus" is a very constant feature of this disease, and it is still a question whether this is the result of motor or sensory disturbance. It consists of a sensation of a ball in the throat, or rising from the stomach to the throat, and causing choking. This is said to be analogous to the "aura" in epilepsy. The paralysis of hysteria may affect one limb only, or the arm and leg of one side, or the arm of one side and leg of the other. The levator palpebræ superioris is frequently affected, but the facial and hypoglossal nerves are rarely involved. The paralysis may also affect the muscular walls of the œsophagus, stomach and intestines, and the laryngeal muscles, producing aphonia.

Of the disturbances of the circulatory system the most important is palpitation, with increased force of the apex beat. In some cases the heart's action fails, and there is syncope. Vasomotor disturbances are seen in the pale skin, which does not bleed when pricked, and in the flushings and profuse sweatings which are often present. Salivation and polyuria often occur after a hysterical attack. The sphincter of the bladder is also at times spasmodically contracted.

The visceral organs also sympathize in the general derangement. The stomach and the intestines are often distended by gas, and in connection therewith a peculiar hysterical colic exists. The patients also have a sensation of fullness, so that they believe that they have a swelling or tumor, and assert that it is impossible for them to close their dresses or tie their skirts firmly.

Intractable, spasmodic, long-continued vomiting is likewise observed in hysteria. Withal the stomach can be quite healthy and tolerate even very heavy nutriment. Indeed, such patients eat nothing for days, and then suddenly voraciously swallow large quantities. Connected with this we find, of course, digestive disturbances, especially constipation. In other cases, although vomiting does not occur, a permanent hiccough renders the condition equally annoying. In the respiratory sphere, a dry, spasmodic, tickling cough, and a difficulty of breathing, known as hysterical asthma, are the most important symptoms.

DIAGNOSIS.—The diagnosis is often very difficult, and requires the exercise of the greatest caution and skill. The nervous manifestations of hysteria are so varied, and simulate those connected with so many grave organic diseases, that the difficulty arises in being able to positively exclude cerebral or spinal organic lesion.

Often a great injustice is done persons suffering with serious organic disease by too readily assuming the whole disturbance to be of a purely functional character.

Hysteria may be diagnosticated from epilepsy by the history of the case, by the fact that consciousness is not lost, and by the fact that the convulsive seizures are more uniform and coördinated than in epilepsy. Then, too, an epileptic fit usually terminates in coma and profound sleep, which is not the case in hysteria. Hysterical fits do not occur during sleep, and apparently are to some extent controlled in their appearance and intensity by the will of the patient.

Hysterical paralysis is not usually complete, and may affect one or the other limb or arm, or the arm of one side and the leg of the other, which would not occur from cerebral lesion. Paralysis of the facial and hypoglossal nerves is seldom present, thus distinguishing it from hemiplegia. In hysteria there is always a normal reaction to the electric current, and there is no tendency to atrophy of the parts. From many forms of spinal and nervous diseases no positive rules of diagnosis can be given. Only a continued knowledge of the course of the disease in a given case, and a study of its individual peculiarities as the disease progresses, in comparison with the course of other diseases which it may simulate, will finally solve the problem. If hysterical hyperæsthesia so affect the joints as to simulate arthritis, it may be diagnosticated by the fact that the pain is around, and not in, the joint, and that it is not aggravated by forcing the articular surfaces together. From inflammatory and other chronic diseases of the internal organs, hysteria can often be distinguished only by careful and repeated physical examinations. Nor should the fact be overlooked that sometimes in real hysteria serious organic lesions supervene and demand our recognition and attention.

Dr. Bruce (1) reports a case in which the patient had symptoms of hysteria; there was no optic neuritis, or other indication of cerebral mischief, and yet the post-mortem revealed a large tumor in the tempora-sphenoidal lobe.

PROGNOSIS.—Unless complicated with organic diseases hysteria seldom proves fatal. If the disease is hereditary, and the nervous system, both by birth and education, is peculiarly liable to its development, a perfect cure is seldom accomplished. Sometimes melancholia, or some other form of insanity succeeds, and the usual course of such an affection is followed. In mild cases, and those due to etiological conditions which are subject to control, a cure may be effected. Some cases recover spontaneously after the cli-

1) Brain, part XXII, 1883.

maxis. According to Fritsch, (1) "Those cases in which a single symptom is pronounced, even if to a high degree, are prognostically more favorable than cases of slight multiple hysteria."

TREATMENT.—The moral treatment of an hysterical patient is of the utmost importance. Dr. Ludlam says (2):—"This disorder, being chiefly emotional in its origin, and, indeed, in its very nature, it is vitally important to obtain such an influence over the mind of the patient as will serve in a measure to control the symptoms, or at least to place her in a state in which our remedies will act more promptly and efficiently. There can be no doubt that very many cases of hysteria, in some of its protean forms, have been unwittingly cured by means that were suited to occupy, divert, overwhelm, or control the emotional faculties. Such expedients are to be regarded only as auxiliaries to proper treatment, but as such they are so useful, and sometimes so necessary, that they should not be overlooked. For it has often happened that the manner and bearing of the nurse, or of some kind-hearted neighbor who has been called in, has done a thousand times more to cure these patients than the physician's prescription. The intangible, but no less potent, influences of fear, faith, hope, confidence, will, reason, diversion, management, occupation of the mind, argument, concession, opposition, sympathy, indulgence of caprice, helping her to bear her burdens—whether real or imaginary—change of diet, air, and scenery are sometimes indispensable. And unless we can use them appropriately, or the patient shall happen to be accidentally brought under their influence, the best chosen remedies will utterly fail of effect. What the character of this mental treatment should be in any given case will be apparent to any physician possessed of tact and judgment, both of which are indispensable in the treatment of hysteria. Uniform kindness to the patient is necessary, but firmness and decision are equally so. Sympathy is sometimes required, though more often it will do more harm than good; nevertheless, the physician should not carry his lack of sympathy and consideration to such an extent as to lose the confidence of his patient, for this once done he can accomplish very little for her after."

If the patient is anæmic, as is usually the case, she should receive the ordinary hygienic treatment—systematic exercise in the open air, plenty of sunlight, nourishing and carefully regulated diet. Often a trip to the seashore, with salt-water bathing, will be of excellent service. In fact, a trip anywhere amongst congenial surroundings is often a benefit in hysteria. The patient grows weary of home, and any change is often desirable, provided that

1) *Op. Cit.*, p. 345.

2) *Lectures on the Diseases of Women*, p. 707.

it is not to any crowded fashionable resort. Sometimes it is necessary that the patient be removed from the influence of too sympathizing friends, and often it is better that she leave home and be entirely with strangers in order to strengthen her will power. She should be made to avoid exciting amusements and novel-reading, or anything that tends to vitiate the mind and deprave the imagination. S. Wier Mitchell's treatment of uterine and ovarian diseases by means of rest, massage, feeding, electricity, etc., which is fully described on page 182, has been found especially useful in the treatment of hysteria.

Electricity, as ordinarily used, has often proved useful, but whether it really overcomes the nervous irritation, or simply acts upon the patient's imagination, cannot be told, though the latter is the probable explanation. But it matters little so long as benefit is derived from its use. Nor is the fact often forgotten that after the physician has treated a case of hysteria for a long time without accomplishing a cure, and is at his "wits' ends" as to what to do next, he can still continue the use of electricity.

To relieve an hysterical paroxysm, many expedients aside from the use of remedies have been resorted to. The dashing of cold water into the face, or pouring it over the head or spine; holding the nose to stop the breath; introducing a rectal tube to allow accumulated flatus to pass off, have all in turn been tried. Sometimes a full injection of hot water into the colon affords prompt relief. To this injection may be added, if necessary, an ounce or more of asafœtida. More often the administration of a little ether or chloroform will act the best, and speedily cut short the paroxysm. Occasionally this has been accomplished by simply pressing firmly upon the ovaries.

Clitoridectomy has been resorted to in cases where erotism was prominent. Castration, or the removal of the ovaries, has been suggested, and practiced, but it is not justifiable save when the case is extreme and the cause positively referable to ovarian disease. So far as remedies are concerned it is evident that a disease covering such a vast range of symptoms may require almost any remedy in the materia medica, and such is indeed the case. Some remedies, however, are more useful than others, and to these only will I refer:—

ANACARDIUM.—Great weakness of memory; anxiety and feeling of impending misfortune; malicious; profane; feels as though she had two wills, one commanding to do what the other forbids; loss of confidence in herself and everybody else, hallucinations.

ARSENICUM.—Hysterical asthma at every little excitement; worse the latter part of night; she cannot lie down for fear of suffocation; wants some water every few minutes; great fear of death.

ASAFÆTIDA.—Throat and œsophagus chiefly affected; sensation of a ball rising in throat, obliging frequent swallowing to keep it down, and causing at times difficult breathing; restless, anxious, unsteady, fickle, irritable; great distension of stomach and abdomen with flatus, with much belching; nervous palpitation; hypersensitive.

CAULOPHYLLUM.—Hysterical paroxysm during menses or at puberty; dysmenorrhea; spasms of chest and larynx.

CIMICIFUGA.—Hysterical spasms at time of menses, or following the disappearance of neuralgia; amenorrhea or dysmenorrhea; ovarian irritation, especially on left side; pains like electric shocks or lancinating pains in various parts.

COCCULUS.—Choking constriction in the upper part of fauces, with difficult breathing and disposition to cough; retarded menses, which finally appear, with great weakness and nausea, even to faintness; roaring in the ears.

CONIUM.—Vertigo in recumbent position; globus hystericus; during micturation her urine alternately flows and stops; the breasts swell, become hard and painful before the menses, when the hysterical symptoms increase.

GELSEMIUM.—Hysterical convulsions, with spasms of the glottis; hysterical epilepsy; excessive irritability of mind and body, with vascular excitement; semi-stupor, with languor and prostration; nervous headaches, commencing in the neck and spreading over whole head; migraine; dysmenorrhea of a neuralgic or spasmodic character.

IGNATIA.—Changeable disposition; laughing and crying alternately; least blame or contradiction excites and irritates her; full of supposed grief, broods over imaginary troubles; frequent sighing; sensation of a lump in the throat; difficult breathing; sensation of weakness and sinking in pit of stomach, caused by grief or fright; twitches and convulsions or fainting fits and paralysis.

LACHESIS.—Loquacious; jealous; suspicious; sensation of lump rising in throat; uneasiness from least contact on throat or abdomen; uterine and ovarian pains relieved by flow of blood; during climacteric.

LILIUM TIGRINUM.—Depression of spirits, timid, weeping and apprehensive; tormented about her salvation; always in a hurry; profane; obscene thoughts; headache; bearing down in the uterine region; ovarian pains; pains in the chest; fluttering of the heart; ovarian irritation and inflammation; uterine inflammation or displacement.

MOSCHUS.—Chilliness over the whole body; great tendency to involuntary stools; copious, colorless urine; great restlessness of the lower extremities; long-continued scolding, until she falls

down fainting; talks continually of her approaching death; frequent swooning; constriction of the chest; tetanic spasms; globus hystericus; great desire for beer or brandy.

NUX MOSCHATA.—Changeable mood, one moment laughing, the next crying; enormous distension of the abdomen after meals; leucorrhea in place of the menses; great sleepiness.

NUX VOMICA.—Quarrelsome, irritable, morose, easily excited; oversensitive to external impressions, such as a noise, talking, music, strong odors, etc.; easily offended; hypochondriac mood, worse after eating; dyspepsia; constipation; spasms renewed by the slightest touch; hysteria from high living or spirituous liquors, or overuse of mind and sedentary habits.

PALLADIUM.—She imagines herself neglected; wounded pride; greatly inclined to use strong language and violent expressions; excited and impatient; distended abdomen, from flatulence; stools hard, like chalk; pain and weakness, as if the uterus were sinking down; every motion painful; great sleepiness, and feels better after sleep.

PHOSPHORUS.—Increase of sexual desire; great sense of weakness in abdomen, aggravating all other symptoms; eructations of wind after eating; sleepy after dinner.

PLATINA.—Self-exaltation and contempt for others; strange titillating sensation, extending from genital organs upward into the abdomen; spasms, with wild shrieks; menses in excess, dark and thick; chilliness; no thirst; better out of doors; horrifying thoughts.

PULSATILLA.—Morose, out of sorts, discontented and fretful; inclined to weep; dyspepsia; bearing-down pains in abdomen; amenorrhea; first menses delayed; pains and other symptoms constantly changing; worse evenings; better in the open air; most useful in patients with light or sandy hair and blue eyes.

SABINA.—Very nervous and apprehensive; music intolerable; menorrhagia; tendency to abortion at third month; tired and indolent; pain from back through to pubis.

SENECIO.—Nervousness, sleeplessness and hysterical moods, with amenorrhea or dysmenorrhea.

SEPIA.—Nervous, irritable, fretful, sad and dejected; indifferent to everything, even her own family; mental and physical indolence; sensation of emptiness in stomach and abdomen; bearing-down in uterine region; displacements; leucorrhea, amenorrhea, dysmenorrhea; exhaustion and faintness; want of natural warmth; sensitive to cold air, especially during child-bed or while nursing.

TARANTULA.—Hystero-epilepsy; chorea; great sexual excitement; paroxysms relieved by music.

THERIDION.—Time passes too quickly; vertigo and headache; sounds penetrate the teeth; during puberty or at climacteric.

ZINCUM.—Nervous, fidgety moving of the feet, must move them incessantly; twitching and jerking in various muscles; feels better while menstruating.

CHAPTER LVI.

STERILITY.

SYNONYMS.—Barrenness. Infecundity.

DEFINITION.—This term implies an incapability for conception, but by common usage it is applied to all women who have never borne children, even though it has not been established that the failure to conceive is due to their incapacity. So also is the term sterility very appropriately applied to women who have a capacity for conception, but who remain childless, either because the fertilizing element in the male is wanting, or because, if conception does occur, the ovum does not mature. In the strict sense of the term such women are barren but not sterile.

In a clinical work it is not necessary to more than briefly enumerate the various causes that may give rise to sterility in the true sense of the term—that is, those cases which produce an incapacity for conception, having nothing to do either with an incapacity for gestation on the part of the female, or deficient virility on the part of the male.

Neither is it, in the language of Dr. Barnes (1), “a part of the object of an essentially clinical work to dwell upon the moral or social aspects of this question. But it is strictly within the scope of medical discussion to observe that sterility is not summed up by saying that it is simply the negation of fertility. Complete sexual life in women implies the due succession of the functions of ovulation, of gestation, and of lactation. The ovaries, the uterus and the breasts ought, in the natural cycle or order, to relieve one another. Where the ovaries alone act continuously under the excitation of married life, a sense of an unfulfilled function arises, which, in many organizations, is likely to induce physical as well as mental disturbances. The familiar saying that women in a certain condition of health would be well if they could have children is a popular mode of expressing the physiological fact.”

ETIOLOGY.—Sterility may be either congenital or acquired. That is, it may be due to congenital organic defects, or it may arise from subsequent disease. However, the causes of sterility are not usually classified according to whether they are congenital or acquired, but rather as to the method by which they

1) Diseases of Women, p. 107.

produce sterility. Thomas (1) tabulates the special causes of sterility as follows:—

1. *Causes preventing the entrance of semen into the uterus:*
Absence of the uterus or vagina;
Obturator hymen;
Vaginismus;
Atresia vaginæ;
Occlusion of cervical canal;
Conical shape of cervix;
Cervical endometritis;
Polypi or fibroids;
Displacements;
Very small os internum.
2. *Causes preventing the production of healthy ovule:*
Chronic ovaritis;
Cystic disease of both ovaries;
Cellulitis or peritonitis;
Absence of ovaries.
3. *Causes preventing passage of ovule into uterus:*
Stricture or obliteration of Fallopian tubes;
Absence of Fallopian tubes;
Detachments and displacements of Fallopian tubes.
4. *Causes destroying vitality of semen or preventing fixation of impregnated ovum:*
Corporeal or cervical endometritis;
Membranous dysmenorrhea;
Menorrhagia or metrorrhagia;
Abnormal growths;
Chronic metritis.

These pathological states have already been fully considered under their respective heads, and do not require further elaboration.

Other authors (2) have laid down as psychical causes:—Incompatibility of temperament; frigidity; erotism. Several cases are on record where sterility has been the result of the connection of one husband and wife, while, after a divorce, both parties had issue by other mates.

Coldness or absence of sexual desire is considered by some to be a cause of sterility. No doubt sterile women are frequently devoid of sexual feeling. But, on the other hand, there are many women who have never conceived, but, who are decidedly amorous in their disposition and desires. It is claimed by some that the cervix

1) Op. Cit., p. 625.

2) Hale on Sterility, p. 274.

uteri, under strictly normal conditions, is capable of effecting an erection as complete as that which occurs in the male, and the mechanism is similar in both, erection and emission taking place in the female as well as in the male, and that conception will not take place unless this orgasm occurs. This may be true in some instances, but it certainly is not true as a general proposition.

The influence of erotism or erotomania in preventing conception I am not prepared to elucidate, but I am inclined to believe that erotic women are more likely to be prolific than otherwise.

It is claimed by some authorities that any cause, of whatever nature, that produces dyspareunia, is a cause of sterility. Undoubtedly this is frequently the case, but it should be borne in mind that as a rule these causes act in other and more certain ways to produce sterility, than in the mere difficulty and pain of coition, there being usually some obstacle to the entrance of the semen into the uterus.

The influence of painful menstruation upon conception, or at least the simultaneous occurrence of dysmenorrhea and sterility, is familiar to every physician. It is seldom that we are called upon to treat dysmenorrhea except in childless women, though not infrequently conception occurs and cures the disease. Emmett shows by carefully prepared tables "that of all married women who at puberty suffered pain during the flow, over 71 per cent. were sterile."

The influence of gonorrhea in producing an incapacity for conception is now pretty generally admitted. Dr. Emil Næggerath (1), in 1872, first called attention to a theory that gonorrhea remained latent in the system during the life of the individual. This has not been generally accepted by the profession, but one of his propositions, made in connection with that theory, namely, that the wives of those men who at any period of their lives have had gonorrhea, remain, as a rule, sterile, has received many supporters. Could that proposition be modified as follows:—"a woman who has once had gonorrhea remains as a rule sterile," I think it would express a pretty well established fact. I cannot enter into a discussion as to how this process sets up certain inflammatory states in the pelvis which may cause sterility, nor is this necessary, as the subject is already well understood.

Finally, I would call attention to the fact that in those causes destroying the vitality of the semen before it reaches the cervical canal, the chief factor is the acid character of the vaginal discharges. This may be simply an abnormally acid vaginal mucus, or it may be a leucorrheal or menstrual discharge of a like character. The alkaline mucus of the uterus is favorable to the vitality

1) Latent Gonorrhea in the Female, Bonn, 1872.

of the spermatozoa, but when it becomes altered by disease it may cause their speedy death.

Biegel has found that all of the following agents are destructive of spermatozoa:—water, saliva, sour milk, alcohol, ether, chloroform, creasote, tannin, acetic acid, mineral acids, metallic salts, ethereal oils.

DIAGNOSIS.—Under this head it might be appropriate to mention the fact that an apparent lack of fertility in the female may be due to deficient virility in the male, and it is quite often important to ascertain if this be the case. It may prove difficult to obtain knowledge upon this point, as men are sometimes very averse to revealing any sexual deficiency in themselves, and will, as Dr. Thomas says, “often allow the supposition of sterility on the part of their wives to be maintained rather than admit the truth.” He says that “in two cases I have used an anæsthetic, ruptured the hymen, and distended the vagina, under the impression that sterility of several years’ standing was due to the impossibility of the accomplishment of intercourse, and have subsequently discovered that the husbands of my patients were entirely impotent, and had been so before marriage.” For this reason it is often difficult to procure their consent to an investigation. In such cases, if there is no history of impotence, or seminal weakness, and the organs are apparently normal in structure and function, it becomes necessary to test the semen microscopically. For this purpose a single drop is sufficient. It should be examined as soon after emission as possible, and before a low temperature or any other inimical influences may have been exerted upon it. If the semen does not contain spermatozoa, or if they are present, but motionless, the man is sterile.

PROGNOSIS.—This depends entirely upon our ability to discover and remove the cause, but as a general proposition it may be said that the treatment of sterility is decidedly unsatisfactory. In those cases where any of the essential organs of reproduction are absent or imperfectly developed, and in those where no cause can be ascertained, the prognosis is most unfavorable, the latter class probably consisting of those obscure mechanical or physiological impediments which can be neither discovered nor removed.

TREATMENT.—This consists in the removal of the condition which is causing the sterility, if such a thing be possible. As Dr. Thomas well says :—“This affection is commonly only a symptom which should be reached through the malady which induces it.”

The treatment of the various pathological states which may cause sterility has already been considered elsewhere, and need not be repeated. I will mention the fact only that where sterility arises from flexion or other obstruction of the cervical canal, the

introduction of a slippery-elm tent makes a mild and perfectly safe substitute for the intra-stem pessary. It can be introduced in the morning and left till evening, at which time, upon removal, it leaves the canal patent for a sufficient length of time to attempt securing conception.

No treatment for sterility alone should be undertaken that involves danger to the life of the woman, no matter how strong the desire may be for an heir. As Dr. Thorburn (1) says:—"There is no necessity for informing the patient that you do not see the extreme necessity in the same light that she and her husband do. But operations of complaisance are always to be deprecated, and I would counsel that no risk should ever be incurred in such cases, beyond what would be considered advisable in the case of husband and wife who were simply desirous of the increased happiness of offspring, but who were sensible enough to deprecate any proceedings fraught with danger to life or permanent health."

Concerning artificial impregnation, I shall say but little, regarding it, as I do, as a process of exceedingly doubtful utility, to say nothing of its questionable propriety. It consists in the mechanical introduction of spermatic fluid into the uterine cavity in the following manner:—Coitus having been practiced in the usual manner, a small quantity of the semen is, within a few minutes after, drawn from the vagina into a properly constructed syringe which has been previously warmed to the normal temperature of the body. The tip of the syringe is then passed through the cervical canal to a point beyond the internal os, and a drop or two carefully discharged within the uterus. The tube is allowed to remain a moment, and is then carefully withdrawn, the woman to remain quietly in bed for several hours.

Girault (2) prefers to the syringe a hollow sound for the introduction of the semen. The instrument, properly charged, is placed within the neck of the uterus, and the fluid is discharged by the operator's blowing through the tube.

That artificial impregnation has been occasionally successful there can be no doubt, and if it is the urgent request of both husband and wife that this method be attempted, it might be wrong for the physician to object on merely ethical grounds.

In his remarks on the general therapeutics of sterility Dr. Hale (3) says:—

"By referring to the list of medicinal causes of sterility, it will be seen that the same medicines are enumerated that appear below as the curative agents in sterility. That this should be so,

1) Diseases of Women, American Edition, p. 524.

2) Etude sur la Generation artificielle dans l'Espece Humain. Paris, 1909.

3) Op. Cit.

is in accordance with the law of cure, which asserts that only those medicines which cause diseases are capable of curing similar ones. No medicine, therefore, can cure sterility, without being capable, either directly or indirectly, of causing that condition."

To this I might add that no medicine will cure sterility that does not possess in its pathogenesis the symptoms which the sterile patient presents, whether these be due to some local lesion, or to some obscure physical or mental condition, the pathology of which cannot be ascertained.

Dr. Hale believes "that nearly all medicines capable of causing sterility do so by their action on the ovaries," by interfering with the important function of ovulation. This is probably true, but whether it is or not does not matter so long as we adhere strictly to the symptoms of the case in the selection of a remedy.

The following remedies should be consulted: *Agnus Castus*, *Aletris*, *Apis mel.*, *Belladonna*, *Borax*, *Baryta carb.*, *Cantharis*, *Calcarea carb.*, *Cannabis sat.*, *Conium*, *Cimicifuga*, *Caulophyllum*, *Eupatorium purp.*, *Helonias*, *Iodium*, *Kali brom.*, *Mercurius*, *Phosphorus*, *Platina*, *Pulsatilla*, *Ruta grav.*, *Sabina*, *Secale*, *Stillingia*, *Senecio*, *Sepia*, *Sulphur*.

Those who desire to make a more general study of the therapeutics of sterility are referred to Dr. Hale's book, already mentioned.

CHAPTER LVII.

EXTRA-UTERINE GESTATION.

SYNONYMS.—Extra-uterine pregnancy. Extra-uterine foetation. Ectopic gestation.

DEFINITION.—The fixation and development of the fecundated ovum at some point outside of the uterine cavity.

VARIETIES.—The different forms of extra-uterine gestation are designated according to the location at which the fertilized ovum is arrested on its way to the uterus. The ovum becomes adherent at the point of arrest, and development takes place in like manner as in the uterine cavity. Hence, we have the following varieties:—(1) Tubal; (2) Tubo-uterine, or, interstitial; (3) Tubo-ovarian; (4) Tubo-abdominal; (5) Abdominal; (6) Ovarian; (7) When occurring in a rudimentary horn of the uterus.

There are also three very rare varieties known as the utero-tubal, utero-tubo-abdominal and sub-peritoneo-pelvic. In the first named of these the placenta is in its normal location within the uterine cavity, and the foetus in the Fallopian tubes. In the utero-tubo-abdominal the placenta is within the uterus and the foetus in the abdominal cavity, the two being connected by an umbilical cord passing through

FIG 195.—Tubal gestation

the tubes. In the sub-peritoneo-pelvic variety the ovum develops within the folds of the broad ligament.

1. **TUBAL GESTATION.**—This is the most common form of extra-uterine gestation, and comprises all cases in which the point of attachment of the ovum is in the course of the Fallopian tube between the uterine and abdominal extremities.

By far the greater proportion of cases occur in the central part of the tube. In tubal gestation the covering is composed solely of the walls of the tube.

2. **TUBO-UTERINE, or, INTERSTITIAL GESTATION.**—This variety comprises those cases in which the ovum is arrested in that portion of the tube which passes through the uterine wall. It is

FIG. 196.—Tubal gestation.

of rare occurrence. In most instances in which the ovum becomes attached at the point indicated, it develops in such a way as to dilate the ostium uterinum, its future growth extending into the uterus or its walls. In this variety the covering is composed of the uterine tissue and the wall of the tube.

3. **TUBO-OVARIAN GESTATION.**—When the point of attachment is at the fimbriated extremity of the tube, development takes place toward the abdominal cavity, an attachment being formed also with the ovary, which, together with the tube and the products of a localized inflammation, constitutes a membranous covering or capsule for the ovum. According to Bandle, (1) "The

1) Diseases of the Tubes, etc. *Cyclopedia Obstetrics and Gynecology*, Vol. XII, p. 52, W. Wood & Co.

tubal wall often does not follow the developing ovum, but becomes thinned, and bursts at one or another point, at which place inflammatory exudations occur; and occasionally the effused blood forms a secondary capsule for the ovum.

“Localized peritonitis and the resulting inflammatory products cause adhesions of the outer covering of the ovum with the neighboring structures, broad ligaments, ovaries, omentum, intestine, bladder and uterus. Also by constant formation of false membranes, and repeated rupture of the same in the gradual develop-

FIG. 197.—Interstitial gestation.

ment of the ovum, it becomes adherent to distant organs, the spleen, kidney or liver. The placenta is usually found in the pelvic portion of the abdominal cavity.

“This gradual pathologico-anatomical formation of the outer covering of the ovum explains why pregnancy lasts longer in these cases, even occasionally to term, or the child may be carried beyond the normal time.”

4. **TUBO-ABDOMINAL GESTATION.**—This variety differs from the last mentioned only in that none of the investing structures is ovarian. The symptoms and course are the same.

5. **ABDOMINAL GESTATION.**—If the ovum drops into the peritoneal cavity either in an impregnated state, or, if it becomes impregnated afterward, as some claim, abdominal gestation occurs.

Undoubtedly abdominal gestation is also frequently secondary to tubal or ovarian gestation, impregnation taking place in the tube or ovary and foetal development progressing to a point when the sac gives way; but, according to Barnes, (1) "the ovum is not cast out of its original attachments. Inflammation of the peritoneum is excited by the rupture and effusion of blood; neighboring organs get connected by adhesions with the sac; the embryo and its envelopes grow into the new space; fresh effusions of lymph are thrown out surrounding all, and thus a new sac is formed in which it is difficult to trace the original tubal structure."

According to Klob the ovum develops from the point where it is in contact with the abdominal wall, where cell proliferation of the connective tissue partly surrounds it, which through extra-

FIG. 198.—A lithopædion.

ordinary vascularity makes it possible for a placenta to develop. The sac thus formed often attains a degree of thickness which renders it comparable to the walls of a gravid uterus.

In secondary abdominal gestation, when rupture of the sac and foetal membranes occur allowing the foetus to pass into the abdominal cavity, the foetus usually dies within a short time, but development may continue, a secondary sac being formed, as previously described. If death of the foetus occurs, the latter may become petrified, forming what is termed a lithopædion, (Fig. 198.) or by aid of the surrounding vascular tissues the soft structures of the body may be preserved for years. Hecker and others maintain that abdominal gestation is more frequent than tubal.

6. OVARIAN GESTATION.—This term is applied to those cases in which the fecundation and development of the ovum takes

1) Diseases of Women, p. 376.

place in the Graafian follicle. The possibility of ovarian gestation has long been a disputed point, but well authenticated cases now on record seem to have established the question in the affirmative. Nevertheless some authors still maintain that the starting point of all such cases is at the abdominal end of the tube. On the contrary, Schröder holds that many cases described as abdominal were really ovarian. Bandl is of the opinion that the origin of ovarian pregnancy is easily accounted for; he claims that after the bursting of a follicle the ovule remains in the ovary, and by some cause there becomes impregnated, but is prevented from escaping and following its proper course. The walls of the Graafian fol-

FIG. 199.—Abdominal gestation.

licle and the ovarian stroma furnish for the ovum a membranous envelope, which resembles the wall of an ovarian cyst.

7. GESTATION IN A RUDIMENTARY HORN OF THE UTERUS.—This form of gestation, while intra-uterine, is, in its character and results, equivalent to interstitial gestation, and cannot be distinguished from that variety during life. Nor, indeed, is it always possible to differentiate between the two in the cadaver, for in both instances the round ligament extends in an outward direction; whereas, in tubal gestation the ligament is situated between the sac and the uterus.

Thomas, while recognizing the varieties of extra-uterine gestation above described, claims that "the tubo-ovarian, tubo-abdominal, ovarian, and some other varieties are niceties beyond the appreciation of diagnosis," and that the gynecologist "is forced to limit himself as far as practice is concerned to the classification of all varieties into (1) tubal, (2) interstitial and (3) abdominal pregnancies."

UTERINE CHANGES IN EXTRA-UTERINE GESTATION.—The changes which take place in the uterus during extra-uterine gestation are much the same as in normal pregnancy. The uterus becomes larger, softer, more vascular, and a decidua forms in its cavity. These changes are most marked in the interstitial variety, and become less in proportion to the distance of the point of attachment from the uterine cavity. As a rule the changes do not last

FIG. 200 —Gestation in a rudimentary cornu.

long, the uterus returning to its normal size and condition whether or not the development of the ovum continues. What has been said of the uterus also holds true as to the vagina and mammae, which, in the first stages of extra-uterine gestation, undergo the changes incident to pregnancy.

ETIOLOGY.—Extra-uterine gestation may be caused by any condition that gives rise to an occlusion or mechanical obstruction of the tubes. Among these conditions may be catarrhal inflammation of the tubes themselves, or pelvic inflammation resulting in adhesions. The latter operates by causing angulations and constrictions of the tubes, thus retaining the fecundated germ in the ovary, preventing its entrance into the Fallopian tube, or arresting its progress after its entrance. Polypi, either at the entrance or in the course of the tubes, have also caused obstruction and given rise to extra-uterine gestation. Paralysis, spasm and insufficient length of the tube have been ascribed as causes. Migration of the ovum is also laid down by some authors as a cause of extra-uterine gestation, but this opinion is not generally accepted. Parvin observes (1) that “in some instances the oviduct may be sufficiently pervious for spermatozoids, but not for the ovum, but in others it is completely closed in some part of its course, and then there must have been either transmigration of the ovum, or transmigration of the spermatozoids; in the first case the impregnated ovule comes from the opposite ovary, and in the second the spermatozoids come through the opposite tube, then make their way across to the ovary corresponding with the impervious duct.”

SYMPTOMS.—The symptoms of extra-uterine gestation are neither definite nor distinct. At first, in some cases, there may be no symptoms whatever, while in others the ordinary symptoms of pregnancy are manifest, though they usually present a degree of irregularity not common in normal pregnancy. Thus, the menses may be present or absent, and, if present, either scanty or profuse; and often there is hemorrhage, or a discharge of clots, which have been mistaken for portions of the placenta. The mammary sympathies are excited in most cases, and the changes in the areola take place. The patient may or may not suffer from nausea or vomiting, and in some cases at an early period the foetal movements have been felt by the patient. Abdominal pain is usually complained of at an early date. This pain may be intermittent in character, but is generally constant, and limited to one spot, that being usually at the site of the enlargement, if there be any. According to Dr. Perry the pain is quite characteristic. He says (2) that “often at the end of the fourth week, often not until the end of the second month, the woman is seized with a violent pain usually described as colic, and situated in the hypogastric region, generally on one side. The pain is very severe, and often produces profound prostration, with pallor, cold, clammy perspiration, feeble or nearly imperceptible pulse and even syncope. It is generally

1) Science and Art of Obstetrics, p. 305.

2) Leishman's System of Midwifery, 2d American Edition, p. 199.

associated with marked and even very great tenderness in the lower part of the abdomen, which has led some to mistake this condition for peritonitis. After a period of variable duration, from a few hours to one or two days in most cases, the severity of the pain diminishes, or it may disappear entirely. The calm, however, is deceptive, for sooner or later another paroxysm sets in, and pursues the same course that the first did. These attacks of pain continue to recur at intervals, until rupture occurs, or until after the fifth or sixth month of gestation."

The pain and the symptoms of inflammation which may also accompany it are supposed to result from a partial rupture of the sac, or, more often, the limiting adhesions are being stretched or torn, and new ones forming. This may continue until term, or even beyond, but such instances are rare, rupture of the sac most often occurring before the third month. This is accounted for by the fact that the tubal variety is most frequent, and in this form early rupture of the sac is almost a certainty. Usually the symptoms consequent upon rupture are the first to cause alarm, and the physician being hurriedly summoned, finds that after a sudden and violent attack of pain, with a simultaneous diminution in the size of the tumor, the patient is in a state of collapse, with pallor, dimness of vision, vomiting, syncope, and other symptoms which indicate profuse internal hemorrhage. If the hemorrhage be arrested either by natural or artificial means, the symptoms gradually disappear, and the patient rallies. But in most cases no such result follows; the pulse becomes weaker, the patient is covered with a cold sweat, often convulsions supervene, and death rapidly follows. Should the patient rally from the collapse, there is liable to be a return of the hemorrhage within a few days, and if this does not occur there is danger that the contents of the sac, together with the effused blood, may give rise to a violent and rapidly fatal peritonitis.

Should development progress beyond the fourth month, pressure symptoms become manifest, especially difficulty and pain in micturition and defecation. These are caused by the falling of the sac into the pelvis, usually into Douglas' pouch. Should adhesions be present, preventing the descent of the sac, pressure symptoms are wanting. If development still continues, the physical signs of advanced pregnancy appear. Foetal heart sounds are heard, the movements of the child are distinct, and the tumor resembles that of a gravid uterus, except that it is located a little to one side of the median line.

DIAGNOSIS.—The diagnosis of extra-uterine gestation is a matter of the greatest importance, yet it is usually attended with considerable difficulty, and often cannot be positively established

at an early stage. Tubal gestation is sometimes recognized early by the presence of a tumor in the region of the tube, accompanied by the usual signs of pregnancy, but other varieties are very rarely diagnosticated in the early stages. According to Bandl, (1) "Sudden and violent internal hemorrhage after previously good health in a pregnant woman, together with the passage of decidua, will warn us that extra-uterine pregnancy is present."

At the time of rupture of the sac the condition is generally mistaken for pelvic hemocele, the symptoms of pain and collapse being precisely the same, and unless a history of pregnancy be present even a presumptive differentiation is possible.

If the woman survive such an early rupture, the effused blood sometimes forms a tumor larger than the foetal sac itself. This often renders the diagnosis between a simple hemocele and an early extra-uterine pregnancy almost or quite impossible.

In the later stages of development the difficulties are somewhat lessened, but even here the most careful and persistent examinations by all the methods at command are required before anything like a positive diagnosis can be established. After the fourth month the ovum is as large as two fists, and, unless the abdominal walls are very thick, may be quite distinctly traced, even to the contour of the foetus. Sometimes a bi-manual examination with the patient under the influence of an anæsthetic is required to establish the relations which the tumor holds to the uterus, and to demonstrate also the condition of the uterine walls and the emptiness of the uterine cavity. For the latter purpose the sound affords the most valuable aid, but it should not be employed unless there is a reasonable certainty that intra-uterine pregnancy does not exist, remembering that it is possible to have both intra- and extra-uterine gestation at the same time. The same holds true in regard to the dilatation of the cervical canal with tents, and an exploration of the uterine cavity with the finger, which is recommended by Thomas.

At this stage, unless the patient's condition demands immediate interference, which is not likely to be the case, it is better to postpone giving a positive opinion until the physical signs of advanced pregnancy appear—active movements and the foetal heart sounds—after which there can be no question as to the presence of pregnancy, the only point remaining to be determined, if it has not already been done, being the question of the intra- or extra-uterine location of the foetal sac.

Before the symptoms of advanced pregnancy have appeared there is danger of confounding extra-uterine pregnancy with the following conditions:—

1) Op. Cit., p. 80.

1. Normal or retroflexed gravid uterus;
2. Pelvic hematocele;
3. Ovarian cyst;
4. Cyst of the broad ligament;
5. Fibroid tumor;
6. Pelvic exudations or abscess.

The fact that the tumor lies distinct from the uterine body, and that the uterine cavity is empty, differentiates from the first condition named, unless intra- and extra-uterine gestation co-exist, which fact would greatly complicate the diagnosis. From the other conditions named a diagnosis may be established by the rules which have elsewhere been considered, under the respective heads. Thomas, whose large experience in the diagnosis and treatment of extra-uterine gestation entitles his words to great weight, says (1) "that in some cases ballottement, clear and distinct as that which is gotten in normal pregnancy, lends us its aid and makes diagnosis certain; in others the aspirator clears up the case; while in others still, where, for example, the question lies between a cyst of the broad ligament and extra-uterine pregnancy, cutting into the sac by means of the incandescent knife will combine diagnosis and treatment in a most satisfactory manner."

The diagnosis of the different varieties of extra-uterine gestation in the early months is impossible. If the gestation has lasted four or five months without rupture, the chances are that it is abdominal, and almost certainly not tubal. Thomas lays down some rules to aid in determining the variety, but they are not reliable, as he himself admits, and need not be given.

TERMINATION.—More than four-fifths of the cases of extra-uterine gestation result fatally. According to Kiwisch the mortality is 82.5 per cent. In tubal gestation rupture usually occurs about the second, third or fourth month, followed, as we have already seen, by hemorrhage, peritonitis and death. In ovarian and abdominal gestation rupture does not usually occur before the eighth or ninth month. Should only partial rupture occur, the sac being more or less surrounded and protected by adhesions, the effused blood may be absorbed, and the patient rally, only to suffer from another partial rupture sooner or later as the ovum increases in size, which may follow the same course as the first. At other times the ovum may degenerate or the foetus die, and the whole become converted into a so-called mole; or, becoming encapsulated by processes of inflammation, it may become mummified; or, either with or without these changes, it may become calcified, forming a lithopædion. In the latter case the calcified product may be carried many years without fatal results, or even without

1) *Diseases of Women*, 5th ed., p. 770.

any noticeable systemic disturbance. Cases are on record where a lithopædion has been carried fifty years. At any time, however, a lithopædion may give rise to fatal peritonitis. It is a somewhat remarkable fact that women carrying a retained extra-uterine ovum have repeatedly become pregnant, and have been delivered of healthy children at full term without disturbing the retained ovum.

In some instances after the death of the foetus a suppurative inflammation is established in the sac, and the patient dies from peritonitis; or fistulous openings may form through the intestines, abdominal walls, vagina or bladder, and the foetus be discharged in pieces, followed, in most instances, by the recovery of the patient, though death not unfrequently occurs from septicæmia, or from exhaustion due to the long-continued drain upon the system.

In case extra-uterine gestation goes on to full term without accident, the period is marked by the usual pains characteristic of normal labor, a fact which is of remarkable physiological and clinical interest.

CHAPTER LVIII.

TREATMENT OF EXTRA-UTERINE GESTATION.

THE treatment of extra-uterine gestation may be either symptomatic or curative.

Symptomatic treatment consists in the relief of the pain by the use of remedies and external applications. The remedies most often required are Belladonna and Colocynth, according to indications. Also consult Apis, Arsenicum, Bryonia, Cantharis, Cimicifuga, Terebinthina and Veratrum album.

Dry heat may be applied over the abdomen, but it is not safe to use fomentations.

The patient should at all times exercise great care to avoid any jar or shock, the lifting of heavy weights, severe exercise or long journeys, or doing anything that might cause rupture of the sac. As much time as possible should be spent in the prone position. The bowels should be kept moderately loose by means of appropriate diet, remedies and enemata, in order that straining at stool may be avoided.

If rupture occur, the patient should be placed at once in the horizontal position and ice applied to the abdomen, or a hot water spinal bag applied to the lumbo-dorsal region. The aorta may be compressed, though this is not a very satisfactory expedient. If there be great prostration and collapse, stimulants should be administered, and sulphuric ether be injected hypodermically. Any one of the following remedies may be prescribed, according to circumstances:—Aconite, Arnica, Digitalis, Hamamelis, Phosphorus, Millefolium, Secale, Terebinthina, Thlaspi.

The *curative treatment* of extra-uterine gestation is necessarily surgical in its character, and is best considered under three distinct heads:—

1. During early stage;
2. During advanced stage, the foetus still living;
3. During advanced stage, the foetus being dead.

Before detailing the various methods of treatment employed, I desire to quote a few observations from Thomas, who has probably had a larger experience in the treatment of these cases than any other surgeon, certainly than any other American surgeon, and whose statements are of exceptional value and should be carefully considered. In the first place, Dr. Thomas does not favor either

complete non-interference or surgical measures, in the treatment of cases of extra-uterine gestation, but claims that "on a middle ground, one lying between those extremes, the truly conservative surgeon will find his appropriate position." He then continues as follows (1):—

"Let us in the beginning recognize the fact that, do what we will—remain utterly inactive, or use the greatest surgical enterprise—the issue of these unfortunate cases will be bad. And let every surgeon be sure that he does not shirk a dangerous operation because he fears the odium which will probably attach to a fatal result, and which he would avoid if he simply allowed his patient to die without an effort.

"He who cannot bear unjust censure and endure without complaint an odium which he does not deserve, was not born to be a surgeon, one of the greatest functions of whose life this is; and under the grave responsibilities which attach to the conduct of a case of ectopic gestation it is the bounden duty of such an one to place his patient's interests in stronger hands. The statement is true everywhere in surgery, but nowhere is its truth more strikingly apparent than in these cases, that every personal consideration, every private interest, should yield to the good of the patient.

"One point which may be regarded as entirely settled in the treatment of extra-uterine pregnancy is this: a secondary operation for discharge of the contents of the foetal sac is always safer than a primary one. But its antithesis must likewise be recognized—it may become hazardous to discard a primary operation and to expose a patient to the delay involved by waiting for a secondary one. The rule for interference should then be this: delay is wise so long as it is the offspring of prudence; it is culpable as soon as it becomes the dictate of timidity and indecision."

1. TREATMENT DURING THE EARLY STAGE OF GESTATION.—This consists either in (1) the primary removal of the entire sac and its contents by laparotomy, or elytrotomy, or, (2) in imitating nature by adopting measures to cause the death of the embryo. (3) Laparotomy after rupture of the sac.

(1.) *Primary removal.*—It having been definitely ascertained that an extra-uterine gestation exists, and if the case has the appearance of a tubal gestation, and, especially, if it be giving rise to severe symptoms, we may seriously consider the advisability of the removal of the sac and contents before rupture occurs. In cases where an opportunity for an early diagnosis has been had, Bandl and others advise immediate surgical interference. This may be accomplished by either of two methods:—a. Laparotomy, b. Elytrotomy.

1) Op. Cit., p. 773.

a. *Laparotomy*.—This operation is performed precisely in the manner of ovariectomy, and, as Bandl says, “there is no reason why we should not attain as good results as in that operation.” The broad and ovarian ligaments and the Fallopian tube are included as a pedicle in a ligature, and the foetal mass is removed.

b. *Elytrotomy*.—In cases where the severity of the symptoms demands immediate interference, Thomas recommends, if the tumor be certainly accessible from the pelvis, that it “be cut freely into by a dull, incandescent point, like the knife of Paquelin’s thermo-cautery, the foetus removed, hemorrhage controlled by a firm tampon, septicæmia prevented by antiseptic injections, and the placenta allowed to come away itself.”

(2.) *Measures to cause the death of the embryo*.—These are:—

a. electricity; b. injections into the sac; c. aspiration; d. puncture.

a. *Electricity*.—The Faradic current is used, the negative electrode being introduced into the rectum, and the positive placed over the tumor, and a moderate current employed for about ten minutes. This should be repeated every day, until the diminution of the foetal cyst and the retrograde changes in the breasts show that gestation has been definitely arrested. Usually four or five sittings are required. Dr. Blackwood, (1) who has used electricity successfully in five cases of extra-uterine gestation, advocates the application of a strong current continued for an hour, and but a single application.

b. *Injections into the sac*.—The injection of atropia, strychnia or morphia to destroy the foetus has been successfully practiced. Morphia has been most extensively used. It is said to produce but slight inflammatory disturbance, and to have but little narcotic influence upon the maternal system. The injection is made through the vaginal or abdominal walls by means of a long and slender hypodermic needle, ten to fifteen drops of Majendie’s solution of morphia being used.

c. *Aspiration*.—This consists in drawing off the liquor amnii by means of a very small aspirating needle, under antiseptic precautions. Several instances are recorded where cures have been accomplished by this method.

d. *Puncture*.—This operation has been successfully employed several times, but is very frequently followed by septicæmia and peritonitis, and has been severely condemned by several observers of wide experience. The operation is performed through the deepest place in the posterior vaginal wall, by means of a long, curved trocar. It has also been performed through the rectum. As the use of the trocar necessarily admits air, involving the danger of septicæmia, it is obvious that aspiration, while answering

1) Philadelphia Medical Times, 1888.

the indications of the operation equally well, is a much safer method.

The death of the embryo having been accomplished by either of the methods mentioned, it is then better to leave subsequent events to nature, keeping careful watch of the case and being ready to remove the sac and its contents at any time when the symptoms indicate such a necessity, using either of the methods already described, laparotomy or elytrotomy, according to individual circumstances.

(3.) *Laparotomy after rupture of the sac.*—Notwithstanding the mortality that has in the past attended this operation for the relief of the cataclysmic symptoms resulting from the rupture of an extra-uterine foetal cyst, it is coming into greater favor as our knowledge of abdominal surgery increases.

Kiwisch, many years ago, held the opinion that, since death can hardly be averted in any other way, it is proper to open the abdominal cavity and stop the hemorrhage directly.

Bandl (1) says that "this proposal of Kiwisch's was made at a time when the results of ovariectomy were by no means so favorable as they are to-day; and we can certainly remove from the peritoneal cavity such dangerous contents as blood, liquor amnii and fragments of tissue.

"The difficulty in the diagnosis and the fact that other affections, especially hematocele, often have very much the same symptoms of internal hemorrhage, will limit the applicability of the operation."

Thomas says (2) he "would now assume laparotomy to be the only legitimate resource in these cases when sufficient delay has been practiced to convince the practitioner that death is surely approaching."

According to Kiwisch the operation is performed as follows:—

"In the first place the abdominal cavity must be freely opened (six to eight inches), with the usual precautions, along the linea alba. The peritoneal incision might at first be made only a few lines in length, and by the introduction of a warm sound and careful pressure, a certainty of the presence of blood in the peritoneal cavity be obtained. If there is blood the opening should be completed, and the pelvic contents made thoroughly accessible. Next, we must find the bleeding point. The hand is to be introduced into the abdomen, and the uterus lifted up, and, if it is not itself the seat of an interstitial pregnancy, its appendages are to be carefully followed out on the side of the tumor. It may be necessary first to remove the effused blood. The rupture discovered,

1) Op. Cit., p. 86.

2) Op. Cit., p. 777.

the ovum or its remains are to be at once extracted. If the ovum is already in the abdominal cavity, its removal may be deferred till later. In accordance with the structure of the seat of hemorrhage the bleeding point must be seized with the forceps and wholly or in part tied with long ligatures, or, if the edges of the wound need it, they must be united by a fine needle and moderately thick silk. If, as will most often probably be the case, this does not suffice to check the hemorrhage, we might in tubal cases extirpate the entire sac, using the same procedure as the ovariologists do. After hemorrhage has entirely ceased we can proceed to thoroughly remove the effused blood by means of fine, warmed sponges, and then replace the intestines and close the abdominal wound, passing the ends of the ligature out through it."

Bandl suggests that, as in modern ovariectomy, the ligatures should be cut short, and the usual antiseptic precautions observed.

2. TREATMENT DURING THE ADVANCED STAGE, THE FŒTUS STILL LIVING.—It is generally admitted that a case of extra-uterine gestation having advanced beyond the period ordinarily possible for tubal distension and consequent rupture, should not be interfered with before full term, unless the symptoms imperatively demand such interference, which usually is not the case. The only disputed question is as to the advisability of operating at term. Bandl, Thomas and other recent writers advocate operating, while Parvin holds (1) that "the deplorable mortality of the operation to the mothers gives us to the present time a negative answer." Thomas says (2) that "at full term an effort at labor usually occurs and gives a signal for action. Should this most fortunate event occur, the crowning triumph of obstetric surgery may be reached in the delivery of a living child from a living woman at full term, as was done by Jesop, of Leeds, in a case reported to the London Obstetrical Society a few years ago.

"At the present day, when abdominal surgery is so thoroughly systematized, and so fully understood, and when the great contributions of the illustrious Lister have so completely altered its results, it is worse than useless to quote the statistics of laparotomy for extra-uterine pregnancy collected by Campbell and others. A new departure must be made in the subject, and the future must make its own record."

As to the time of operation, Bandl observes that "Kiwisch long ago noticed the danger of waiting for expulsive pains, and no time should be lost." He has also "seen the beginning of the pains mark the turning point in the woman's fate," and holds that oper-

1) Op. Cit., p. 314.

2) Op. Cit., p. 773.

ative interference should take place as soon as the end of pregnancy appears to have been reached, without waiting for expulsive pains.

This operation may also be performed either by (1) laparotomy or (2) elytrotomy, the choice of procedure depending upon the situation of the sac.

(1.) *Laparotomy*.—As a rule this is the most suitable procedure, for the reason that the greater part of the foetus lies above the pelvic brim. The operation is performed entirely according to the rules of ovariectomy. The linea alba marks the line of incision. According to Bandl (1) “the chief danger of the operation, while the child is alive, lies, as Lintzmann has shown, in the relations of the placenta and the placental circulation. If the placenta is attached to the anterior sac wall, and we can hardly ascertain that until we have made the incision, a very serious hemorrhage will inevitably occur. In fact most of the cases operated upon have perished from this cause. We must either avoid this hemorrhage or control it. And now-a-days, when much greater technical difficulties in operations upon abdominal tumors and organs have been overcome, it is to be hoped that we shall succeed in this also. We might puncture the ovum in another place, quickly enlarge the foetal sac, and extract the child, after passing an elastic ligature around the placenta; or perhaps by enlarging the abdominal incision we might be able to open the sac at some other place; or we might after puncture push the placenta vessels to one side, put an elastic ligature around them, open the sac, extract the child, and extirpate the whole membranous bag.

“Subsequent to the operation we must take great care that no injurious secretions are allowed to collect, and that purulent remains of the embryo find free outlet through the abdominal wound. We shall often have purulent collections, especially in Douglas’ cul-de-sac. If possible they should be evacuated by puncture or incision.”

(2.) *Elytrotomy*.—This method is advisable in those advanced cases where a large part of the foetus lies in the pelvis, the head or buttock depressing and thinning out the posterior vaginal vault. The operation consists in making an incision in the vaginal wall, and through it seizing and removing the child by means of obstetrical forceps. Bandl recommends passing the hand through the wound into the cavity of the ovum, and extracting the child by the feet. He then ties the cord with an aseptic thread, level with the surface of the wound, and stuffs iodoform gauze into the vagina and wound. Naturally, no attempt is to be made to remove the placenta, only those membranes and shreds of tissue which appear at the level of the wound being taken away. A few days later we

1) Op. Cit., p. 92.

may try, by gentle traction, to see if we cannot remove the placenta without creating excessive hemorrhage.

Under these circumstances the peritoneal cavity is usually not opened by the operation, on account of the multiple adhesions of the sac. If no attempt is made to remove the placenta the woman will lose but little blood. The large incision permits the free outflow of discharges, and everything is in the most favorable condition for healing. If the secretions begin to smell, and fever appear, we should freely inject disinfecting fluids, or, if necessary, apply drainage.

3. TREATMENT DURING THE ADVANCED STAGE, THE FŒTUS BEING DEAD.—Under these circumstances the expectant plan of treatment should be adopted, and no operation performed until the symptoms of the case demand it. The great danger lies in hemorrhage and septicæmia. According to Thomas, "the longer time that the placenta remains attached after foetal death, the more certain is it to become atrophied and consequently less vascular," therefore the less danger of hemorrhage. Also, "the more thoroughly the foetal envelopes become disgorged and atrophic from loss of function, the less likely is this dangerous complication (septicæmia) to develop." All authorities agree that no operation should be performed until it is certain that the placental circulation has ceased, unless the symptoms of the case imperatively demand immediate interference.

Thomas advises "judicious delay and cautious waiting for symptoms indicative of approaching trouble," but he says "such delay, such waiting, are by no means to be carried so far that symptoms of septic absorption shall occur." In case this does happen, the opening of the sac should not be delayed, as the subsequent use of antiseptics is calculated to restrain the pernicious influence of the decomposing contents upon the entire organism.

The operation for the removal of the foetal cyst is, practically, the same as ovariectomy, and is easy or difficult according to the location of the sac, and its relation to the pelvic contents. According to Schroeder, the entire foetal sac should be extirpated when possible. If, on account of adhesions to adjoining viscera, this cannot be done, the sac should be opened under strict antiseptic precautions, and thorough drainage provided. If the sac lie low in the pelvis, it may be best to resort to elyototomy, as already described, but the results of the operation are not so favorable in these cases as in those where the foetus is still living.

In case nature is making an effort to eliminate the remains of the foetus by the abdominal wall, the vagina, the rectum or the bladder, these efforts should be encouraged by all possible means. Sinuses should be kept open, and even enlarged, and the remains

of the foetus extracted wholly or in pieces. According to Bandl, (1) "the longer these natural efforts at elimination last, the more adhesions are there of the sac; and the opening of the abdominal cavity is not much to be feared in later operative procedures."

Bandl also claims "that past experience shows us that we need not fear active operative interference in these cases; and it is to be recommended that incision of the abdominal walls or the vagina, or the enlargement of fistulous tracts, be not shrunk from when nature points out the road of elimination. The supporting sac left after total or partial extraction of the foetus is to be treated as an ordinary abscess cavity."

1) Op. Cit., p. 98.

CHAPTER LIX.

DISEASES OF THE MAMMARY GLANDS.

AMAZIA. POLYMAZIA. RETRACTED NIPPLE. SORE NIPPLES.

IN the female the breasts form a part of the sexual apparatus, and their intimate relation to the sexual organs proper renders the consideration of the diseases to which they are subject important to the gynecologist.

AMAZIA.

DEFINITION.—A congenital absence of the mammary glands.

It must be remembered that the mammary glands differ very materially in size in different women, and that there is no fixed relation between their size and that of the body, so that a woman may have these glands only very slightly developed and yet be perfectly normal. Not unfrequently the glands are so small in virgins and sterile women that their presence defies detection, yet upon the advent of pregnancy they develop with remarkable rapidity. Great inequality in the size of the breasts sometimes exists in the same woman, one breast being of normal size and the other very small, but rarely entirely absent. In nearly all women the right breast is larger and heavier than the left. Congenital absence of one or both breasts is of rare occurrence. The condition is usually observed as coincident with an absence or incomplete development of the ovaries, uterus or vagina, but this is not necessarily the case, as instances are reported where the mammary glands were absent and the genital organs perfectly normal.

POLYMAZIA.

DEFINITION.—The presence of more than two mammary glands in the same individual,—supernumerary mammary glands.

According to Meckel von Hemsbach the embryo of the human female contains the germs of five mammæ, as in the bat; two are situated in the middle of each half of the thorax, one in each axilla, and one above the umbilicus just beneath the sternum.

Numerous cases are reported in which three, four and five mammæ have been developed.

A very interesting case has been reported recently by Dr. Bechtinger of Brazil (1) where two supernumerary mammary

1) *Annals of Gynecology*, July, 1888.

glands exist in a woman who also possesses two complete and separate vulvæ and vaginæ and three legs. The third leg is attached to a continuation of the processus coccygeus of the os sacrum. Besides the two well developed mammæ in their natural position a third one, which is double, is seen above the os pubis. The hair surrounding the lower segments of the abnormal mammæ covers the two vaginæ with well developed vulvæ. Both vaginæ are properly supplied with nerves, and normal sexual connection, with correspondingly natural sensations, is possible in either vagina. The sexual appetite is markedly developed. She is twenty-five years of age, a native of Martinique, her father a Frenchman, her mother a Quadroon. She is still living, but left her native country for France about a year ago.

Robert reports a case in which milk could be drawn from a supernumerary mamma on the outer surface of the left thigh; the mother of the patient had a double nipple. Billroth has observed only one case of double nipple. Winckel says he has never seen two or more nipples on the same breast. I have seen a case in my own practice where two nipples exist in the left breast, which, contrary to rule, is considerably larger than the right breast. The larger of the two nipples is situated one and one-half inches above and to the left of the centre of the breast, while the smaller nipple lies one and one-half inches below and to the right of the centre, the two nipples being three inches apart. The larger nipple seems entirely normal, except in location, while the smaller nipple has very slight areolæ. During lactation both nipples discharge milk, but no attempt has ever been made to have a child nurse from the smaller one. It is also an interesting fact that in the left breast the nipple is similarly situated, and below and to the left of it exists a peculiar mark which is evidently an undeveloped nipple.

RETRACTED NIPPLE.

This malformation arises from a shortness of the excretory milk ducts, and is of comparatively frequent occurrence. These ducts may have been congenitally short, or the condition may have been brought about by inflammatory processes during infancy or early childhood.

As it is impossible to lengthen the ducts there is no available method of treatment, either surgical or medical.

SORE NIPPLES.

During lactation the formation of fissures and cracks in the nipples, accompanied by more or less excoriation and even ulceration, is of no uncommon occurrence. Sometimes the irritation extends to the cellular tissue about the nipple, and even to the glandular structure, resulting in mammary abscess.

TREATMENT.—Prophylactic measures are of the utmost importance. It is customary during the latter months of pregnancy to harden the skin covering the nipple by the use of astringent lotions, such as tea, tannin or a decoction of white oak bark, but I believe such a custom should be deprecated for reasons that are mentioned in the chapter on mastitis.

Nursing from the affected breast must cease entirely, or the nipple must be protected by a shield or some suitable application. For the latter purpose some use a solution of gutta-percha and chloroform, which dries and forms a protective pellicle which does not dissolve when the child nurses. Balsam of Peru or Tolu, with or without gum arabic, oil of almonds or rose-water, cerate of castor equinus, collodion, with or without glycerine, may be used as a protection. Gold-beaters' skin, perforated and applied over the nipple, is a good protective. Yolk of an egg, four parts, with glycerine, five parts, forms an excellent protective varnish.

I have found either a lotion or glycerole of calendula to be the best curative application. Hamamelis, Hydrastis, Arnica, Phytolacca, or Tannin may be used in the same manner. A cerate of Graphites, or Graphites 2d trit., dusted over the nipple, is often of benefit. Pulverized gum arabic, hydrastin or boracic acid dusted on the nipple are highly recommended, as is also repeated washings with a five-per-cent. solution of carbolic acid. In very bad cases lead water may be used, or a weak solution of nitrate of silver, and if these do not answer touch the fissures and new surfaces once or twice with lunar caustic. The nipple should always be washed off both before and after the child nurses.

Internal remedies are often of benefit, according to the local and constitutional symptoms present. The following are most often required: Argentum nit., Arnica, Belladonna, Calcareo carb., Calendula, Chamomilla, Graphites, Hepar sulph., Iodine, Lycopodium, Mercurius, Nux vom., Phytolacca, Silicea, Sulphur.

Dr. Leavitt gives the following indications (1):—

Nipples itch, burn, look red: Agaricus.

Nipples sore from nursing: Argentum nit.

Nipples ulcerated: Calcareo carb.

Nipples ache, and feel sore: Calcareo phos.

Nipples nearly ulcerated off in neglected cases: Castor equinus.

Nipples bleed much, and are very sore: Lycopodium.

Nipples feel very raw and sore: Mercurius.

Nipples ulcerate easily, and are very sore and tender: Causticum.

Nipples inflamed and very sensitive: Chamomilla.

1) Science and Art of Obstetrics, p. 603.

Nipples dark, brownish red; unbearable pain on slightest touch; breasts full, skin hot, pulse strong : *Colchicum*.

Nipples very sore to the touch; pain from nipple to scapula of same side whenever the child nurses : *Croton tig.*

Nipples painful, inflamed, cracked : *Graphites*.

Nipples very sensitive, will not bear contact with the clothing : *Helonias*.

Nipples sore, fissured, or covered with scurf ; bleed easily : *Lycopodium*.

Nipples itch, and have a mealy covering : *Petroleum*.

Nipples very sensitive : *Phytolacca*.

Nipples sore and fissured, with intense suffering on putting the child to the breast; pain seems to start from the nipple and radiate over the whole body : *Phytolacca*.

Nipples sore to touch, and sore and painful spot under right nipple : *Sanguinaria can.*

Nipples sore; they itch and bleed : *Sepia*.

Nipples cracked across the crown : *Sepia*.

Nipples drawn in like a funnel : *Silicea*.

Nipples cracked; after nursing they burn and bleed : *Sulphur*.

Nipples painful during nursing, though there is but little appearance of soreness : *Nux vom.*

Nipples in the first days of nursing feel sore, as if bruised : *Arnica*.

CHAPTER LX.

MASTITIS. MASTODYNIA.

MASTITIS.

SYNONYMS.—Mammitis. Inflammation of the breast. Abscess of the breast.

DEFINITION.—Inflammation of the mammary gland, involving the entire parenchyma, or being confined to the milk ducts and sinuses. The term is also improperly applied to an inflammation of the superficial connective tissue of the breast, originating in the subcutaneous tissue of the areola, and also to those rare cases of submammary inflammation, or paramastitis, where the connective tissue between the gland and the thorax becomes inflamed, and usually followed by extensive suppuration.

VARIETIES.—Mastitis may be either acute, sub-acute or chronic, and puerperal or non-puerperal, the non-puerperal variety being of rare occurrence, notwithstanding the situation of the gland is such as to expose it to all sorts of accidents.

PATHOLOGY.—The exact pathology of parenchymatous mastitis at its outset is largely a matter of conjecture, and is based upon clinical rather than anatomical observations. According to Billroth, (1) “the gland is never affected at once in toto (as usually appears to be the case in parotitis), but inflammatory foci are formed in the gland, which may remain separate, but which as a rule gradually coalesce, and suppurate together. The foci may be considered partly as non-escaping milk, surrounded by inflamed tissue, partly as suppurating inflammatory foci, situated in the connective tissue between the acini.”

According to Klob's observations, “the affected parts seem hard, and usually form nodular tumors, section of which shows them to be distended with milk; the glandular tissue is hyperæmic and very succulent. In the acini, small extravasations of blood, the size of a pin's head, may be seen. As a rule, suppuration occurs early, and appears to me, indeed, to be a connective tissue suppuration; at least I could not discover anything in such cases which would indicate an epithelial suppuration. Pus appears at first in the acini, partly fluid, partly not, and, as it seems to me, most frequently with fibrous intercellular substance, so that we find

1) Diseases of the Female Mammary Glands, W. Wood & Co., p. 18.

in the grouped acini heaps of yellowish, fibrinous plugs, analogous to those found in croupous pneumonia. Destruction soon overtakes the finer interacinous tissue, the small purulent foci coalesce, forming larger ones, the pus becomes fluid and the true mammary abscess is formed. The cavity of this abscess never has a smooth wall, but the membrane is rough, and, not infrequently, nodular, and ragged particles of broken down gland tissue are found projecting from it."

Billroth's observations lead him to conclude that "the inflammatory irritant must proceed from the acini themselves or from their immediate surroundings," but he has also found by experiments upon animals that "there are channels of dissemination for inflammatory processes, which follow the ramifications of the gland; these can only be the blood- and lymph- vessels, which surround the ducts and lobules. I might maintain that it is most probable that the irritative material is distributed with the lymph through the gland, and thence acts upon the capillary network around the lobules, that the leucocytes emigrate and produce the purulent infiltration of the tissue immediately surrounding the lobules and the iracini. As to whether the pus cells are formed more from themselves or from the connective tissue cells of the interstitial tissue, I cannot say. At all events, capillary stasis, thrombosis and necrosis of the tissue result so far as this is not already the subject of cell infiltration. As regards the 'fibrinous purulent' plugs, which Klob found in the small abscesses of purulent lobules, I would prefer to look upon these as necrotic glandular and connective tissue. One may easily observe this change in suppuration of the subcutaneous tissue. I have not been able to convince myself of the formation of fibrin in mastitis, at least in the cases I have carefully examined, and would prefer, therefore, not to accept too readily the comparison with the finer processes of croupous pneumonia, which I have carefully studied. Further researches are necessary to prove that the process described by me in the tissue in puerperal mastitis is constant. These researches are now of new interest, as there is such a growing inclination to attribute all such infectious suppurations to the growth of micrococci."

The secretion of milk is arrested in the affected lobules. If a large duct be perforated by the suppurative process, pus may be discharged with the milk through the nipple, or, on the other hand, a milk fistula may be established at some other point. Sometimes, instead of the purulent foci existing at the same time and coalescing, they may suppurate in succession, and keep up a series of abscesses lasting weeks and even months.

ETIOLOGY.—Puerperal mastitis is now regarded as being most often the result of diseased nipples, in a majority of cases arising

from the introduction of septic material through a wound of the nipple. A lymphangitis is thus established which extends to the deeper structures of the gland.

According to Sappy, nine times out of ten mammary angeioleucitis begins by a crack, a fissure, an erysipelas, in a word some irritation seated at a point of the nipple or of the areola.

Probably mastitis sometimes arises from a stasis of milk in the duct, but modern investigations seem to prove that, as Roser claims, the stagnation of milk is the result and not the cause of the inflammation. However, it is well known that a weakness of the child, in consequence of which the breasts are not thoroughly emptied of their contents, or undue pressure exercised upon the gland by misfitting dresses, producing obstructions in single tubes of the gland, does result in milk stases followed by inflammation. The view that bacteria may enter the milk ducts through the nipple and excite inflammation has never been proved, and is scarcely worthy of consideration.

Inflammation of the superficial connective tissue may arise from external injuries, bruises, exposure to cold, or emotional disturbances, such as fright. The superficial inflammation thus established may extend inward and involve the parenchyma of the breast, giving rise to inflammation and subsequent suppuration.

Non-puerperal mastitis may result from injury of the nipple, or from pressure, blows or falls upon the gland. In some instances no exciting cause can be ascertained, but in such cases a scrofulous diathesis is usually present. The cause of mastitis in newly-born children is unknown.

SYMPTOMS. — The advent of puerperal mastitis is usually marked by a chill, followed by an increased temperature and frequent pulse. The breast is the seat of sharp, shooting pains and one or more lobules will be found hard, irregular in form, and sensitive to pressure. The more superficial the inflammation, the more probably there will be seen fine red lines proceeding from the vicinity of the nipple, and indicating lymphangitis, but these are not present if the disease be deep-seated. The inflammation may involve only a small portion of the gland and be soon dissipated by appropriate treatment, or a small abscess may form, the patient recovering at once upon the evacuation of the pus. More often, however, the inflammation extends from one lobule to another until the greater part of the organ becomes involved. Even here resolution may be brought about, but more often suppuration occurs about two weeks after the first appearance of inflammation. The formation of the abscess is indicated by the usual signs of suppuration, rigors, fever, throbbing pain, and finally, if the pus approaches the surface, redness and circumscribed fluctuation. If

the abscess break spontaneously, the suppurating process may terminate at once, or a fistulous passage may be produced and the suppuration continue. At other times the process may be protracted for weeks and even months by the formation of a succession of abscesses which greatly exhaust the patient by the continuous drain thus made upon the system. Very rarely blood-vessels become eroded and fatal hemorrhages occur. Sometimes the entire gland, or a greater part of it, becomes destroyed by the long continued suppuration, and if the cavity of the abscess be considerably exposed to the air, the sloughing tissues may become gangrenous and septicæmia follow.

PROGNOSIS.—The prognosis is almost invariably favorable so far as the life of the mother is concerned, though, should the suppuration be long continued, the drain upon the system may greatly exhaust the patient, and, if she be tuberculous, may cause a fresh outbreak of tubercles in the lungs. Death may in very rare instances occur from septicæmia. As a rule, if attended in time, proper treatment will dissipate the inflammation before pus has formed, or, suppuration having once commenced, it may be kept limited to a small portion of the gland.

If resolution occur without suppuration, the secretion of milk will usually continue, and nursing may be resumed. This may also be the case after a small abscess has formed, but if a considerable portion of the gland has been involved it is probable that the organ has been rendered permanently useless.

TREATMENT.—The preventive treatment of mastitis is of great importance, but does not receive the attention it should. Dr. Julia Holmes Smith gives some excellent advice upon this subject, which is worthy of repetition. She says (1):—

“All pressure upon the mammary glands should be avoided from earliest infancy. The use of high-cut stays with stiff bones cannot be too strongly deprecated. A constant use of cold-water sprays upon the breasts assists in their development and hardening. No false modesty should prevent a mother from carefully instructing her daughter as to the use of these glands and the care necessary to keep them in a perfectly healthy condition during pregnancy. Gentle massage may be practiced by the woman herself, rolling the breasts forward between the hands, and drawing the nipples forward in as close imitation as possible of nursing. This will do much toward hardening and preparing the glands for the vigorous attacks of a hungry baby. The old fashion of applying astringents, such as tannin and glycerine, is to be deprecated. It toughens the surface, but while it overcomes undue sensitiveness,

1) Arndt's System of Medicine, Vol. II, p. 521.

it clogs the orifice of the milk ducts at the nipple, bringing about the very obstruction which is sought to be avoided.

“The child should be put to the breast as soon after labor as possible, for the action of the child’s mouth determines the flow of the blood to the gland and prepares it for the work of secretion. Besides, the close relation of the *mammæ* and uterus makes lactation a very valuable factor in producing involution, and very often putting the child to the breast will produce uterine contractions, and so control hemorrhage.

“Too much cannot be said in favor of nursing the child at regular intervals. Too frequent and irregular nursing keeps up glandular irritation tending toward inflammation, as a perpetual dragging at the nipples may lacerate them. The indifferent mother who empties the breast at too long intervals may cause mischief from over-distension of the milk ducts and lobules. The tiniest fissure should receive careful attention, the child applied to the healthy breast, and the tender nipple covered with a shield. Touching the fissure with nitrate of silver, using a camel’s-hair brush, has been found useful. Covering the tract with compound tincture of benzoin or collodion is also good. If the nipple is too sore for the child to use, even with a shield, the infant should be made to take the bottle for a few days or until the fissures are healed, the milk meanwhile being expressed by massage.”

At the very first indications of inflammation the appropriate remedy should be selected and perseveringly administered. The indications for remedies will be subsequently considered.

The child should be removed from the affected breast at once, and the gland kept as nearly as possible in a state of perfect rest; no rubbing or handling should be allowed, and the breast pump is not to be used, except when the breast becomes so distended with milk as to cause pain, when partial relief only should be secured by a careful use of the pump. If the flow of milk be excessive, camphorated oil or a plaster of lard and camphor may be applied. The breast should be supported by a bandage, unless the method of treatment by systematic and equable pressure be adopted. The latter plan is deserving of special mention. It was first detailed by Dr. P. A. Harris, as follows (1):—

“Having discovered the existence of an inflammatory movement in the breast, of any grade of severity, or at any stage of advancement, short of the formation of an abscess, I should at once interdict nursing, friction, pumping, the application of fomentations, in fact every local measure excepting such as are calculated to secure complete rest for the gland; rest from passive motion, rest from secretion, and rest from pain. All these con-

1) American Journal of Obstetrics, Jan., 1885.

ditions can, in a great degree, be immediately secured for the patient. Procure at once a roll of soft cotton-wool, cotton batting, a plain roller bandage at least twenty yards long and two or two and a quarter inches wide, also eighteen large safety pins. The breast is first covered with a layer of cotton-wool, and the bandage so applied as to lift up and compress the affected organ. The patient should be seen daily, and the bandage reapplied until the crisis is passed; this time varying from one to several days."

Dr. E. H. Grandin says that this method of treatment has been followed for several years in the New York Maternity Hospital "with the very best results, and under its uniform use we never, at this institution, have occasion to interfere surgically with the puerperal breast."

Dr. Hiram Corson strongly advocates (1) treating mammary inflammations by applications of ice, stating that during twenty-seven years in which he has employed it, he has failed in no instance to disperse the inflammation, if suppuration had not already occurred, and at the same time brought comfort to the patient. He states: "There is no better way to apply the ice than to put it into the bladder with just enough water to float it, or just to form a water cushion, that will fit the inflamed part nicely. It is not necessary to put two thicknesses of muslin between the bladder and the breast; it is not too cold without any, but a single thickness is useful to keep the bladder in place more readily."

In all local applications warmth is to be avoided as long as there is hope of preventing suppuration; but should this occur, as shown by occasional chills, and the swelling becoming soft and superficial, a large flaxseed poultice may be applied. An exception to this rule is when a poultice of fresh root of *phytolacca* is applied, which, in the first stage, will frequently dissipate the inflammation. If the fresh root cannot be obtained, the breast may be kept covered with cloths wrung out of hot water in which has been placed a small quantity of *phytolacca* tincture.

As soon as the signs of suppuration appear the abscess should be opened. If the pus be deeply seated, and its location not easily ascertained, it is better first to insert an aspirator needle. The incision should be made at the most dependent point in the abscess, and should be parallel with the lacteal tubes.

Billroth, Kormann, and Kucher advise the introduction of a drainage tube.

Billroth adopts the following plan in opening a mammary abscess (2):—

The breast is at first carefully cleansed with soap, and then

1) American Journal of Obstetrics, 1881.

2) Op. Cit., p. 25.

with a weak carbolic acid or thymol solution. The incision should be made in the direction of the radius of the gland, about thirty-six inches long, and down to the pus focus, and must be immediately followed by the insertion of a drainage tube, which is kept from slipping in by the use of a safety-pin. Gentle pressure is then made upon the gland, so as to force the pus out through the drainage tube; the breast is again washed with some disinfecting solution, the patient being in the recumbent position; the whole breast is covered in with Lister-gauze, waterproof dressings over this, and then, over all, especially below and toward the axilla, is placed a large quantity of salicyl-jute, and the whole dressing is then fastened with a bandage extending over the entire thorax from the neck to the umbilicus. In doing this care should be taken to pack sufficient cotton beneath and around the sound breast to prevent its surface from being pressed into contact with that of the throat. If the abscess is large and sinuous, the dressing should be changed in twenty-four hours, and then should be left in place for from three to five days. By these means the organ is equably compressed, the pus is prevented from decomposing, and the discharge is promoted, all conditions which tend to produce a painless course and a rapid recovery. If, while the bandage is applied, the patient once more suffers from pain and fever, it should be removed, and any new abscess in the process of formation should be opened and treated in the same manner.

By the practice recommended, even in bad cases, the ugly scars and deformities of the breast, which sometimes follow the older poultice treatment, are avoided.

In fresh cases the pus is never decomposed, and irrigation of the wound is unnecessary. In old cases, on the contrary, which have been treated by small incisions and without antiseptic precautions, the pus is often acid, and possessed of irritating properties. For these neglected abscesses Billroth recommends placing the patient under an anæsthetic and enlarging the opening so as to permit the passage of the finger, and breaking down the thin partitions between the abscesses so as to convert them, so far as possible, into large, communicating cavities; while this process is going on the tube of an irrigator should be passed by the side of the finger, and the cavity should be washed with a three-per-cent. solution of carbolic acid until at last the fluid comes away clear and unstained. Drainage tubes should then be introduced and the breast treated antiseptically in the manner already described.

Whenever a compression bandage is required it will be found that compressed sponge will answer an excellent purpose. It is prepared as follows :

Take a large, flat sponge that will completely cover the mam-

mary gland, and after it is thoroughly cleaned, put it in a letter-press for a few hours, or otherwise secure its compression; then place it over the breast, which is first covered by a layer of cotton batting, and apply a bandage. After the application of the bandage a little water is allowed from time to time to pass through it, moistening the sponge, which consequently swells and thus more and more compresses the gland, bringing the abscess walls in perfect contact.

THERAPEUTICS.

The following remedies are most often required:—

During the inflammatory stage—Aconite, Arnica, Belladonna, Bryonia, Phytolacca, Pulsatilla.

After suppuration has commenced Mercurius will sometimes check it and cause absorption of the existing pus. Hepar sulphur, given in a high attenuation, is said to avert a threatening suppuration. On the contrary, if suppuration is inevitable, Hepar sulphur should be given in a low attenuation, to hasten the process. This should not be done, however, so long as there is any possibility of averting the disaster.

If suppuration becomes established, but, after opening, the abscess does not heal, the suppurative process persisting and sometimes fistulæ forming, Silicea is the remedy.

The following are the most common indications for the remedies that have been found useful in mastitis.

ACONITE.—Mastitis caused by exposure to cold. Chill followed by fever; restlessness, anxiety, fear.

APIS.—Burning, stinging pains in the breast; considerable swelling and hardness; erysipelatous inflammation.

ARNICA.—Mastitis following bruises and injuries of the breast.

BELLADONNA.—Breasts feel heavy, with great hardness and swelling; red streaks radiating along the course of the milk ducts; throbbing or stitching pains; headache; constipation; scanty urine.

BRYONIA.—Breasts swollen, very tender, hard, with little or no redness; stitching pains worse on motion or deep inspiration; milk scanty or suppressed.

CARBO ANIMALIS.—Darting pains in mammæ, arresting breathing; worse from pressure; hard, painful spots; swollen, inflamed.

CROTON TIGLIUM.—Breasts hard and swollen; when nursing, a very severe drawing pain runs directly from mammæ through to the back.

GRAPHITES.—Many old cicatrices from former inflammations nearly prevent the milk from flowing. It causes the milk to flow easily and wards off abscess.

HEPAR SULPHUR.—When suppuration seems inevitable, to hasten the process.

LACHESIS.—Breast has a purplish appearance; lancinating pains in the breast and down the arm.

MERCURIUS.—Especially when after Belladonna, suppuration sets in; breast hard and swollen; rigors; throbbing. Mercurius may cause absorption and bring about resolution after pus has formed. Also in cases where suppuration takes place in different parts of the breast.

PHOSPHORUS.—Phlegmonous inflammation. Breasts swollen; red in spots or streaks; hard knots in different places, with fistulous openings, with burning, stinging pain and watery, offensive discharge; hectic fever and night sweats.

PHYTOLACCA.—All things considered, this is probably our most valuable remedy in mastitis. At the onset it may be used externally as a lotion, or in a poultice made from the root, but internally it should be prescribed only when the indications for its use are present. It is especially useful in the ordinary “caked breast,” and in badly treated “gathered breasts” with large fistulous, gaping and angry ulcers, filled with unhealthy granulations and discharging a watery, fetid, ichorous pus; the gland is full of hard, painful nodosities.

SILICEA.—Chronic mastitis. Long continued suppuration. Fistulous openings, with callous edges; discharge thin and watery, or thick and offensive.

SULPHUR.—Chronic mastitis, especially in scrofulous subjects. Inflammation running in radii from nipple; profuse suppuration, with chilliness in the forenoon and heat in the afternoon; old ulcerations; breasts feel hot; nightsweats, flushes of heat, weak and faint spells.

MASTODYNIA.

SYNONYMS.—Neuralgia of the mammary glands.

DEFINITION.—A functional disease characterized by attacks of pain in one or both breasts, unattended with any symptoms of inflammatory disturbance, or evidences of structural changes in the glands. Mastodynia may also occur in connection with small, hard tumors in the gland, or with lobular indurations, but in such cases the neuralgia is secondary to and a result of the changes in structure.

PATHOLOGY.—In simple mastodynia no change whatever in the structure of the glands can be detected, either by inspection or palpation. Billroth maintains that in such instances they are probably “cases of intercostal neuralgia with radiation to the anterior part of the thorax.” Velpeau, who had a large experience with this affection, recognized two other varieties of mastodynia:—

(1) *Tumeurs neuromatiques et nodosités*, and (2) *douleurs neuralgiques et douleurs*. The *tumeurs neuromatiques* consist of hard

nut-sized tumors (neuromata) accompanied by radiating pains, which are relieved at once by the removal of the tumors.

The second variety includes those cases in which the separate lobules of the gland are felt with unusual distinctness, sometimes as if indurated, accompanied by tormenting pains in the breast, which are seldom widely radiated.

ETIOLOGY.—Mastodynia is almost invariably associated with some disease or disturbance of the sexual organs.

Irregularity in menstruation, retroflexion of the uterus, fibroid and ovarian tumors, chlorosis, hysteria, and lactation are very often accompanied by mammary neuralgia, which is usually aggravated at or immediately before the menstrual period. It is also apt to occur soon after conception, and may continue until full term. Sterile women are said to be subject to the disease.

SYMPTOMS.—The pains are neuralgic in their character, and radiate in various directions, sometimes into the axillæ, down the arm into the back, or down the hips. Vomiting is frequently present. Sometimes there are painful spots, which are excessively sensitive to touch, on the breast or nipples, and similar spots are also sometimes found on the spinous processes of the second, third, fourth, fifth and sixth dorsal vertebræ. The left breast is more often affected than the right.

PROGNOSIS.—The disease is never fatal. The prognosis, as regards final cure, depends entirely upon our ability to remove any constitutional or local causes that may be operating.

TREATMENT.—The treatment should be chiefly directed to the constitutional conditions present, the indicated remedy being carefully selected and perseveringly administered. During the attack hot fomentations or ice-bags may be applied. If the pain is severe and these methods do not relieve, chloroform liniment may be used, or equal parts of camphor and chloral, thoroughly triturated, may be applied. Dr. Julia Holmes Smith recommends to spray the breasts with cold water twice a day, and then to apply friction until the surface is in a glow. A compression bandage is said to afford relief and aid in the cure. Von Nussbaum has successfully cured a case of neuralgia of the breast which had previously resisted all other treatment, by stretching the brachial plexus. (1)

According to Winckel the strict anti-hysterical treatment of S. Wier Mitchell, consisting of complete rest associated with a fattening diet and massage, will prove of great service in the treatment of this disease. (See page 182.)

1) Isenschmid, Münchener ärztl. Intelligenzblatt, 1883, Bd. XXX, p. 299.

THERAPEUTICS.

ACONITE.—Great restlessness and nervous irritation, especially in young girls. Pains always aggravated by exposure to cold air.

ARSENICUM.—Agonizing, lancinating pains, always relieved by heat and aggravated by cold or cold air; worse after midnight; patient weak and prostrated; great restlessness and anxiety.

BELLADONNA.—Especially in plethoric girls; tearing, cutting pains which come and go suddenly; usually worse after 3 P.M. and after midnight.

CHAMOMILLA.—Tearing, drawing pains, accompanied by numb sensations in the breast; excessive sensitiveness to pain; nervous and irritable.

CHININUM SULPHURICUM.—Mastodynia associated with malaria, or from debility caused by loss of fluids; pains intermittent, coming on periodically every other day. Also consult *Chininum arsenicosum*.

CIMICIFUGA.—Sharp, lancinating pains in the breasts, associated with ovarian or uterine disturbances; worse on the left side; sensitiveness of the spine; hysterical or rheumatic symptoms.

CINCHONA.—Pains excessive; mammae sensitive to touch; after sexual excesses or hemorrhages; patient very weak and nervous.

FERRUM.—Associated with anæmia; fiery redness of face; emaciation and weakness; headache before the menses, hysterical symptoms after.

GELSEMIUM.—Acute, darting, tearing pains along the track of the nerves; dysmenorrhea; trembling and weakness; languid and drowsy; easily fatigued. In nervous women, especially girls.

IGNATIA.—Hysterical, nervous patients; constant sighing and grieving; jerking and twitching of muscles; over-sensitive to pain; great weakness.

Also consult *Argentum nit.*, *Croton tig.*, *Bryonia*, *Nux vom.*, *Pulsatilla*, *Rhus tox.*

CHAPTER LXI.

TUMORS OF THE MAMMARY GLAND.

CLASSIFICATION.—Considerable diversity of opinion exists among authors as to the correct classification of mammary tumors. Undoubtedly the most scientific classification is that which is based upon the anatomical structure of the growth. Thus Billroth (1) classes fibroma, lipoma, sarcoma, chondroma and osteoma together, as consisting of connective tissue proceeding “from the cellular elements of the connective tissue,” and adenoma and carcinoma as arising “from the epithelial elements of the glands.”

Gross (2) adopts a combined genetic and anatomical classification. He first divides all mammary tumors into neoplasms and cysts; the former being “morbid additions to, or rather overgrowths of, the component tissues of the organ, and represent an excess of normal development and growth.” The latter, “with the exception of those which surround hydatids, are not new formations, but result merely from ectasia or dilatation, and the retention of the secretion of the lacteal glands and of their ducts.”

Neoplasms he subdivides into three varieties, as follows:—

“1. Neoplasms derived from the periglandular connective, and constituted by connective tissue or its equivalents, of which two divisions may be made, namely:—

“a. Those which represent perfected or mature connective tissue, and may, therefore, be called typical. These comprise fibroma, or fibrous tumor, myxoma, or mucous tumor; lipoma, or fatty tumor; and chondroma, or cartilaginous tumor.

“b. The second division includes those neoplasms which represent embryonic, unripe, or transitoral connective tissue, and may be termed atypical. It is limited to the genus sarcoma.

“2. Neoplasms which proceed from the secreting elements, and are composed of epithelium. Of these, adenoma, or glandular tumor, is a typical epithelial growth, while carcinoma is an atypical epithelial formation.

“3. Neoplasms which are derived from and are constituted by higher structures. These are, first, angioma, or a tumor composed of blood-vessels; and secondly, neuroma, or a growth made up of nerves.”

1) Diseases of the Female Mammary Glands, p. 47.

2) Tumors of the Mammary Gland, p. 6.

While to the pathologist there is much of interest in such a classification, which is probably more exact than any other, nevertheless I am convinced that from a clinical standpoint it is not practical, and I shall conform to the simpler plan of dividing mammary tumors into (1) Benign; (2) Malignant. These are subdivided as follows:—

(1) Benign:—

- a. Fibroma;
- b. Lipoma;
- c. Chondroma and osteoma;
- d. Adenoma and cysto-adenoma;
- e. Cysts.

(2) Malignant:—

- a. Sarcoma;
- b. Carcinoma.

BENIGN TUMORS.

DEFINITION.—This term includes all non-malignant growths, whether of connective tissue or epithelial formation. The idea that benign tumors do not recur, and basing the classification upon that idea, is erroneous, for while true adenoma is benign in its character, it is eminently a recurrent growth.

Until quite recently all benign growths of the breast have been known as adenoma, adenocoele, or adenoid tumors, and some standard text-books still retain these terms; but this is also erroneous, as benign growths include formations which not only differ greatly in their origin and nature, but also in their clinical features, true adenomata being of the most infrequent occurrence.

a. FIBROMA.

These are developed from the connective tissue surrounding the acini of the mammary gland. They are usually round or oval in form, and have a nodular or lobulated outline. They are moderately vascular, grow very slowly, vary in size from a hazel-nut to a hen's-egg, and are usually solitary. Fibromata of the breast are rarely homogeneous, but show spaces formed by the dilated, elongated and branched excretory ducts of the gland, containing a serous, viscid fluid. Under high power the microscope shows that the walls are lined by several layers of cylindrical epithelium, and that the contents consist of degenerated cells and fine granules lying in a clear, homogeneous substance. These tumors are often found in virgins and nulliparæ; the terminal vesicles forming, according to Billroth, a predisposition to cysto-sarcoma.

This class of growths have been classified by the most eminent pathologists as adenoid or adeno-fibromata, but modern investigators describe them as merely fibromata.

Inflammation and suppuration may occur, but it is very uncommon. According to Gross, (1) "the degenerations of fibromata are the cystoid, fatty, myxomatous, osseous, calcareous, and telangiectatic, but they are infrequent."

Fibromata are most common between the sixteenth and twenty-fifth years. They are formed on either side, but rarely occur on both sides at the same time. They are usually painless, but not always. Gross mentions three examples where "the pain and tenderness were so great as to occasion what is known as the irritable tumor of the breast, and in none of these did the growth exceed the volume of a small walnut." He considers it highly probable that the small growths which excite so much suffering, instead of being neuromata, are composed essentially of indurated fibrous tissue. Fibromata are said to recur in about one out of every sixteen cases, nevertheless they are entirely innocent in their nature. As a rule no symptoms are developed, the growth being usually accidentally discovered by the patient while washing or dressing.

Cystic fibromata grow more rapidly and acquire a larger size than the simple variety. They sometimes grow very slowly for a time and then rapidly increase in size, indicating an increase in the cystic contents of the growth. Gross says that "in about one case out of every seven of cystic fibromata there is a discharge from the nipple, but this symptom does not appear to be present in the solid form of fibrous tumor."

DIAGNOSIS.—The diagnosis of fibromata depends chiefly upon their indolent nature and insidious origin, their mobility, firm consistence, slow growth, moderate dimensions and lobulated outline.

PROGNOSIS.—The prognosis is always favorable unless they induce extensive suppuration or exert injurious effects upon neighboring organs; such instances, however, being of extremely rare occurrence.

TREATMENT.—The treatment consists in enucleation of the tumor, as described in a succeeding chapter. Remedies seem to have but little influence upon the growth of this class of tumors, but the following may be consulted: Arnica, Baryta carb., Belladonna, Calcaria carb., Calcaria iod., Conium, Iodine, Silicea.

b. LIPOMA.

Fatty tumors in the breast are of extremely rare occurrence, though they not infrequently form behind or near the gland, and then, as they grow, push the gland before them. Gross says that while examples of fatty tumors, developed in the paramammary

1) Op. Cit., p. 58.

adipose tissue, are recorded, he is not aware of a single case of circumscribed lipoma occurring in the gland itself. Billroth says there is no case known in which the glandular was included in the lipomatous tissue.

After the menopause the glandular tissues atrophy, and the whole structure of the breast becomes converted into fatty tissue. Fatty degeneration of a fibroma or sarcoma may occur. Para-

FIG. 201.—Enormous lipoma behind the right mamma (Billroth).

mammary lipomata give rise to no symptoms except such as result from their increased size and weight, though it is claimed that they sometimes occasion a burning pain.

DIAGNOSIS.—The diagnosis is often extremely difficult. Lipoma is most often mistaken for fibroma, but it is more elastic and grows more rapidly.

TREATMENT.—The treatment consists in extirpation or enucleation, according to the size of the growth. The following remedies may prove useful:—Baryta carb., Calcarea carb., Phosphorus, Phytolacca.

C. CHONDROMA AND OSTEOMA.

There is no doubt that cartilaginous and osseous tissue may develop in the breast and form a tumor, though such cases are exceedingly rare, and those that have been recorded would show that such tissues are more apt to exist in connection with

fibromata or sarcomata, small bony or cartilaginous pieces being scattered through the other tissues which constitute the greater part of the tumor. According to Billroth, the only undoubted case of partially ossified chondroma is one that was described by Astley Cooper.

d. ADENOMA.

True adenoma is a genuine hypertrophy, involving an enlargement of epithelial, connective tissue and vascular elements. The habit of calling all non-malignant growths in the breast adenomata, adenocoele, or adenoid, is erroneous, a pure adenoma being one of the most uncommon forms of mammary tumor met with. The hypertrophy may be either general or partial, the former being of extremely rare occurrence. According to Gross, the physiological type of adenoma is to be found in a mamma preparing for lactation, and the tumor, which presents a likeness to the mamma of a female advanced in gestation, may be styled a typical adenoma.

The characteristic feature of adenoma is the presence of the *membrana propria*, which separates the investing epithelium from the surrounding connective. When it is broken through, and the epithelium grows as solid plugs in the stroma, the tumor ceases to be an adenoma and becomes a carcinoma.

Adenomata have a remarkable tendency to become cystic, a majority of the cases observed having undergone this transformation. Much more rarely does fatty or telangiectatic degeneration take place. Spontaneous ulceration has been observed in several cases. On section the cut surfaces of an adenoma "are smooth, lobed, of a milky-white color, with possibly rosaceous areas, and dotted with orifices or small cavities, to which, after the expression of their contents, is imparted a spongy, honeycomb, or sieve-like appearance. Now and then they are occupied by fluid cysts, which, however, rarely number more than three or four, are usually quite small, and rarely exceed the volume of a walnut. They are never pervaded by fissures or slits, nor are they the seat of dilated ducts with intra-canalicular solid growths, such as are witnessed in the connective tissue neoplasms, or of yellowish lines or spots, such as are seen in carcinoma." (1)

Adenoma is always solitary and, according to Gross, usually originates toward the upper and inner circumference of the mamma, rarely beneath or in the vicinity of the nipple. Its growth is slower than other tumors of the breast, and is not caused or inflamed by lactation, pregnancy, menstrual disorders or uterine affections.

Adenoma is usually ovoid, and regularly but not permanently

1) GROSS, *Op. Cit.*, p. 119.

nodulated, and of hard consistence, except where cystic degeneration has taken place.

DIAGNOSIS.—According to Billroth, “the differentiation of adenoma from many other tumors of the breast is usually difficult.” If the growth is small, it is most apt to be confounded with fibroma, but the latter is more circumscribed and mobile, and is more easily isolated. The diagnosis is for the most part based upon the firm consistence of the tumor, its regular but not prominent nodulations, its mobility and its slow growth. From carcinoma it can usually be distinguished by an absence of the following features of that disease:—pain, retraction of the nipple, enlargement of the subcutaneous veins and involvement of the lymphatics.

PROGNOSIS.—An adenoma does not affect the general health or involve other organs, thus showing its benign character; though in about one half the cases recorded the tumor has recurred after extirpation.

TREATMENT.—That such tumors are amenable to treatment there can be no doubt. I believe a majority of cases can be cured without surgical interference. I have had but two cases of true adenoma, both of which were cured with *Phytolacca*. Dr. Hel-muth recommends for adenomata in general *Calcarea carb.*, *Conium* and, especially, *Phosphorus*. I would suggest also:—*Baryta carb.*, *Iodine*, *Silicea* and *Sulphur*, and for cysto-adenomata, *Apis* and *Arsenicum*.

The surgical treatment consists in enucleation or extirpation, though in some instances where the growth is large and involving the greater part or all of the gland, amputation may be preferable. (See Chapter LXIV.)

DIFFUSE HYPERTROPHY OF BOTH BREASTS.—Of this rare condition I will make but brief mention. Billroth has seen only two cases, the illustrations of which I reproduce (Figs. 202, 203). I have seen one case in a maiden lady sixty-five years of age. In this case the hypertrophy began at puberty, which did not occur until the seventeenth year, after which the development continued steadily for about three years. Since that time the growth has remained stationary, the patient suffering only from the discomfort of the increased weight of the breasts and the inconvenience caused by wearing such clothing as has been necessary to support them. The condition occurs usually at the beginning of menstruation, or soon after. The breasts are not usually of the same size, one being more hypertrophied than the other. The nipple is flat or umbilicated, the skin appears thickened or œdematous, and the subcutaneous veins are greatly enlarged. The development is always rapid for two or three months, and then the enlarged

breasts remain stationary. Billroth says that "there is no such thing as a continuous and indefinite growth of it."

There is very little or no pain in the breasts, and no constitu-

FIG. 202.—Hypertrophy of both breasts. Girl 16 years old (Billroth).
tional disturbance except when the great weight of the breasts prevent the patient from attending to her usual duties, thus interfering with her nutrition.

FIG. 208 —Hypertrophy of the breasts. Woman 22 years old (Billroth).

When the breasts become a burden on account of their size, bi-lateral amputation is the only means of affording perfect relief.

e. Cysts.

Pure cysts, distinct from adenoma or sarcoma, are of rare occurrence. They seldom become larger than an orange, are of slow growth, and usually occur after the fortieth year. These are simple retaining cysts, but do not include the milk cyst, or galactoceles, which arises during lactation from dilatation of the

FIG 204.—Mamma with many small cysts; prepared with a portion of the skin, the nipple and areola (Astley Cooper).

sinuses and larger ducts, nor do they include the hydatid cyst, which is occasionally found in the mammary gland.

According to Billroth, the simple mammary cysts are invariably developed from dilatation of the small excretory ducts, and remnants of the division walls may be distinctly seen in the larger cysts. The inner surface is undulating, and occasionally shows papillary excrescence; some traces of epithelium may be seen in the larger cysts. The contents are thin or viscid, and greenish or

brownish. Microscopical examination shows the presence of granular cells, translucent, globular bodies, hematoidin, cholesterine and fat crystals. The pigment is often an intense biliary green. The brownish color is probably produced by thrombosis of the vessels or hemorrhage from the exceedingly vascular cyst walls. Calcification may take place in the latter, and then the contents are colorless, yellowish or white.

Another form of cyst occasionally found in the mammae contains a substance resembling oil (Wormald, Gross), cream, butter (Velpeau) or mortar. According to the investigations of H. Klotz,

FIG. 205.—Compound cystoma. Natural size (Velpeau).

these consist of saponified fat, and, in his opinion, this abnormal secretion, as well as the normal secretion, depends upon the influence of the secretory nerves.

The origin of these cysts has no connection whatever with pregnancy or lactation.

DIAGNOSIS. The diagnosis of a mammary cyst is exceedingly difficult, as its firm consistence, mobility, and painless, chronic course render it very liable to be confounded with a solid tumor. If multiple cysts are present, their hard, irregular feel may simulate carcinoma, but they do not give rise to pain or any constitutional disturbance.

The use of an aspirator or exploring needle will generally

establish the cystic nature of the growth and should be resorted to before an opinion is given.

PROGNOSIS.—The prognosis is always favorable.

TREATMENT.—It is probable that cysts of the mammary gland may sometimes be removed by medicines, but as their extirpation is not attended with danger it is doubtless best to remove them at once, especially as there is always a possibility of an error in diagnosis.

CHAPTER LXII.

MALIGNANT TUMORS OF THE MAMMARY GLAND.

SARCOMA.

VARIETIES.—Sarcoma of the mammary gland may be either round-celled, spindle-celled, or giant-celled.

The varieties are determined by the prevailing form of the cells. They may also be either soft or hard, according to the nature and extent of the intercellular substance, which, according to its relative amount and distribution, renders necessary a subdivision of the varieties named into hyaline, granular, fibrillated, lymphoid and alveolar. Also, by various transformations, sarcoma may become myxomatous, fatty, telangiectatic, cystoid and calcareous. I shall not attempt a separate consideration of sarcoma in all these varieties and subdivisions. In the first place, the original varieties named do not differ from those of sarcoma as occurring elsewhere, and do not require special consideration at this time, while many of the sub-varieties mentioned have never been observed in the mammary gland. I shall, therefore, be content with a brief mention of such varieties as are most often observed in this location, including the so-called proliferating cysto-sarcoma, which is a distinct and peculiar variety, and of comparatively frequent occurrence.

Billroth has never met with cases of spindle-celled sarcoma, myxo-sarcoma, or plexiform-sarcoma in the breast, although spindle cells and myxomatous tissue were occasionally observed in portions of proliferating cysto-sarcomata.

HARD SARCOMA.—This is the fibro-sarcoma of Billroth, the intercellular spaces being filled with fibrous tissue which imparts a hard, firm consistence. Such tumors are most often spindle-celled, sometimes round-celled, are nodular, richly supplied with blood-vessels, compact, loosely adherent to the gland, and tough on section. It is a peculiarity of the hard sarcoma that its tissue remains the same, no matter how long they have existed, though, according to Billroth, there may eventually be a transition to cysto-sarcoma.

These tumors give rise to no pain, and are not sensitive except in rare cases, when they are adherent to nerves. When first noticed they are usually from the size of a hazel-nut to that of a

walnut, and are most often found between the sixteenth and the twenty-fifth year of age, never occurring before puberty or after the menopause. They are of very slow growth, and may exist in an apparently unchanged condition for an indefinite period, even for many years. That such tumors, after remaining stationary and painless for years, become changed into carcinoma, is credited by Billroth. Many of the growths termed adenoid belong to this variety. Their differentiation from simple fibroma without the aid of the microscope is practically impossible.

SOFT SARCOMA.—The soft, or medullary sarcoma, according to Billroth, seldom occurs in the breast. They are usually round-celled, sometimes spindle-celled, and appear as soft, elastic, movable, encapsulated tumors. In some instances they will be found to be composed of small, fusiform cells, or to have undergone myxomatous or fatty degeneration, or to be the seat of interstitial hemorrhages. In the latter case the soft, brain-like tissue may become so extensively interspersed with clots of blood, or with cysts containing blood, that the term hematoid sarcoma is applied to them, or *fungus hematodes* if they protrude through the skin. They usually appear in one gland only, but may be present in both glands at the same time. They grow slowly at first, but more rapidly during the second year; they are not very painful; the axillary glands are not invariably enlarged. Recurrence happens soon after extirpation, death occurring in from one to four years, with secondary growths, from metastasis in the lungs and liver.

The diagnosis of soft sarcoma is much easier than that of the fibrous variety. According to Gross (1), a tumor “of soft, elastic appearance and fluctuating consistence, which attains the volume of an adult head in a few months, can scarcely be anything else than a small-celled sarcoma. On the whole, the diagnosis is based upon their indolent origin, mobility, central situation, elastic, or unequal consistence, lobulated outline, rapid increase, large dimensions for the period of their existence, freedom from lymphatic involvement, their marked tendency to ulcerate, the not infrequent discoloration of the skin and enlargement of the subcutaneous veins, and, possibly, elevation of temperature; upon the suffering which they awaken late in the disease; and upon their greatest frequency after the thirty-fifth year.”

OSTEOID SARCOMA.—This is a new variety of sarcoma recently described by Stilling, whose investigations are recorded by Winckel (2) “In three cases he found a tumor arising without apparent cause, the patients being parous women over fifty years of age. They began as isolated tumors, which displaced the tissue of the

1) Op. Cit., p. 59.

2) Op. Cit., p. 641.

gland as they grew, and remained solitary. Their malignancy was apparent from the extension of the tumor to the subcutaneous tissue, from its rapid growth, quick recurrence, and the development of metastatic tumors in distant organs. Microscopically, the tumor consisted of a network of osteoid strands filled with cellular elements. The osteoid substance showed the configuration of true osseous tissue; the hyaline striated matrix contained alveoli often having prolongations in which globular cells were formed. The central portions of the osteoid tissue had become calcified, and had non-petrified tissue on each side; from the latter there were prolongations sent out into the network, forming a kind of reticulated tissue about the cells. The cells between the strands of osteoid tissue were fusiform, round or polygonal in shape and of variable size, some of them strongly resembling cartilage corpuscles. The metastatic tumors were similar in composition to the recent portion of the primary tumor. The osteoid strands were only partially calcified; there was a limited quantity of cartilage, and many elements resembling cartilage corpuscles. Stilling says the cases of Bonet and Heurtaux were of this character, and thinks that the same is probably true of those of giant-celled sarcoma described by Robin, Lancereaux, Paget and Billroth."

PROLIFERATING CYSTO-SARCOMA.—This is the term given by Müller to a peculiar sarcomatous growth, which Virchow designated as "intra-canalicular myxoma," and which by others has been known by various terms, such as "sero-cystic sarcoma," "glandular proliferous cysts," "cellular hydatids," "tumeurs adenoides," etc.

Proliferating cysto-sarcoma is an encapsulated, nodulated tumor of variable consistence, reddish-gray or pale on section, often gelatinous and œdematous, and containing extravasations.

This form of sarcoma can occur only in the mamma, as it always includes granular elements found nowhere else. The anatomy is thus described by Winckel (1):—

"There are irregular spaces filled with a thin mucus, into which the polypoid and leaf-shaped proliferations project. Near these are found numerous branched and a few rounded cystic cavities.

"The cysto-sarcoma nodules are a proliferation of the layer of hyaline connective tissue which surrounds the acini. As the space is increased the epithelium of the acini is correspondingly multiplied, the acini being drawn out into narrow canals and the ducts dilated. The epithelium of the acini becomes stratified, and of a cylindrical character on the surface; tubercles are formed by the aggregation of the epithelial cells, or they may dissolve into a

1) Op. Cit., p. 642.

homogeneous mucus which fills and distends the canals. The structure is composed of a somewhat œdematous connective tissue, arranged in fasciculi and rich in cells; it is partially myxomatous or lymphoid, but it rarely contains spindle-cells."

FIG. 206.—Section of a proliferous cysto-sarcoma of the breast One third natural life (Billroth).

According to Billroth the prognostic significance of proliferating cysto-sarcoma "depends not on the contents and mass of the cysts, but on the histological character of the interstitial tissues,

FIG. 207.—Enormous cysto-sarcoma of the mamma (Velpeau).

which always possess sufficient peculiarities to separate them from fibro-sarcomata, soft sarcoma and adenoma; though it must be

remembered that these forms of tumors are not to be sharply differentiated anatomically, and there may be many combinations of them."

This variety of sarcoma originates most often between the thirtieth and fortieth years of life, and in the married and parous rather than in the unmarried and sterile. An important diagnostic feature is that they are always movable in the gland, never adherent to the thorax, even when they grow to giant size, which they

FIG. 208.—Myxomatous and telangiectatic cystic small spindle-celled sarcoma

sometimes do. Their growth is variable, sometimes being very slow and at other times very rapid. They are usually painless, and not sensitive to touch or light pressure. They sometimes attain an enormous size. Velpeau reports a case (Fig. 207) 14.4 inches in vertical diameter, twelve inches transversely and forty-eight inches in circumference. Billroth believes that these tumors sometimes arise from fibro-sarcomata of long standing.

There is always a tendency to recurrence after removal. Billroth operated upon nineteen cases, of which twelve remained free

from recurrence from two to ten years after. Local recurrences may take place, owing to the fact that the tumor alone is removed, and not the whole gland. Billroth operated upon one woman five times in four years, there being quick recurrence. After the whole gland was removed there had been no recurrence in three years.

Cysto-sarcoma is seldom infectious, though Billroth reports cases where metastasis to internal organs took place, but without infection of the lymphatic glands.

PROGNOSIS OF SARCOMA.—Gross (1) gives some important points on the prognosis of sarcoma, based upon a study of sixty cases. He concludes that "Round-celled tumors, whether solid or cystic, or whether they pursue a natural course or be subjected to operation, are excessively malignant," and that the prognosis of spindle-celled sarcoma is scarcely more favorable. Contrary to the idea that sarcoma is not infectious, and that recurrences are less frequent after the removal of the whole gland, Gross remarks that it is "interesting to note that recurrence was met with just as frequently after the entire removal of the breast as after partial operations, and that it was certainly due to local infection in all except possibly one, in which multiplicity of the original growth may have denoted the further development of nodules which escaped observation at the first enucleation.

"Sarcoma recurs less frequently and not so rapidly as carcinoma; it is more liable to visceral complications than is the latter."

It is "less infectious locally, but more infectious as regards the general system, than carcinoma. Its more relatively benign character is, moreover, shown by the fact that the average duration of life, from the first observation of the disease to the date of the last report after removal, is seven years, against thirty-seven months for carcinoma; and this contrast becomes the more striking when it is stated that the majority of the sarcomatous patients were still living, while the majority of the carcinomatous subjects were dead. Not only is this statement true for all sarcomata, but it holds good for the two principal varieties, since the average life for the round-celled sarcoma is four years, and seven years and a half for the spindle-celled.

"Although the recurrent regional disease is more intense than the primary, and other reproductions generally follow in quick succession, there can be no doubt that the removal of the tumors, as fast as they appear, alleviates suffering, prolongs life, and averts visceral contamination.

"The prognosis is materially influenced by the age of the patient and by the size and rate of increase of the tumor. Thus in young persons, or before the age of thirty-five, when the gland

1) Op. Cit., p. 90.

is functionally most active, a small, slowly growing sarcoma does not return, while a rapidly increasing cystic tumor is very liable to recur.

•• The prognosis is also influenced by the histological constitution of the tumor and the stage of its evolution. Of the spindle-celled 56.25 per cent. recurred, and 18.75 per cent. gave rise to metastatic growths; of the round-celled 70 per cent. recurred and 30 per cent. were generalized; of the cystic 53.3 per cent. recurred and 13.3 per cent. were disseminated; while, of the solid, 55.5 per cent. recurred, and 22.2 were generalized. Hence, while the round-celled are to be regarded as the most pernicious, the metastasis of the spindle-celled is by no means to be denied; nor can one say, with Erichsen, that the cystic variety tends to wear itself out by repeated operations, since it recurs almost as frequently as the solid variety, although the latter reproduces itself in distant parts in 9 per cent. more of the cases. These investigations demonstrate that the usual statements, which are so opposed to the actual facts as to the malignity of sarcomata, are due either to their not having been based upon a careful analysis of recorded cases, confirmed by minute examination, or to the confounding of cystic sarcomata with cystic fibromata, which never infect the economy."

TREATMENT OF SARCOMA.—Very little has yet been accomplished in the treatment of sarcoma with medicines. Doubtless some benefit may be derived from the persistent use of the carefully selected remedy, but no authentic and reliable reports of cases cured, or even materially benefited, have come under my observation. Helmuth reports (1) a very interesting case of cysto-sarcoma of the breast, in which, after giving "many medicines, among others Calcareo, Silicea, Kali, Iodine, Nux, Sulphur, etc.," without much benefit, he prescribed Kali bromatum, two grains three times daily for two weeks, when "two of the larger cysts opened, and the amount of discharge that passed away was so large and so long continued as to utterly surprise all who beheld it. Three smaller cysts, which lay beyond the internal margin of the gland disappeared; one on the apex of the shoulder also disappeared, and the balance of the tumor shrunk perceptibly. The medicine was still continued, lessening the dose, however, when two other large cysts at the inferior surface of the tumor gave way and freely discharged. After the evacuation of the liquid, in the bottom of cavities were large masses of decomposed substance resembling the cores of decayed apples or of bulbous vegetation. This I scraped away in large quantities, the tumor, meanwhile, growing smaller, but the patient evidently very much weaker. The decayed masses which were removed were very fetid, and it was only by

1) System of Surgery, 5th ed., p. 198.

the use of constant injections of carbolic acid, and the application of disinfectants, with careful attention to proper ventilation and cleanliness, that she could be kept at all comfortable. She had from time to time many symptoms that would indicate the occurrence of paralysis of the affected side, but these would gradually subside."

He then remarks the patient died, but that the case is "recorded not only from the rarity of its nature, but to mark the action of the bromide of potash.

"Whether the rupturing of some of the cysts and the disappearance of others were merely coincidences occurring after the bromide had been given, or whether it was the true action of this important medicinal agent, I am at a loss to determine, although I am disposed to place the changes which took place in the morbid mass to the action of the medicine, and I think I may do this with some confidence, when it is remembered what peculiar action this medicine has been known to possess in other forms of cystic disease."

There is probably no question but that sarcomatous tumors should be removed either by enucleation or amputation of the whole breast (see Chapter LXIV), according to the size of the growth, just as soon as the real nature of the disease is ascertained. Should it subsequently appear that the growth was either benign or carcinomatous, the operation is none the less indicated, even though in the former case it might not have been absolutely necessary.

CHAPTER LXIII.

CARCINOMA OF THE MAMMARY GLAND.

VARIETIES.—The varied and conflicting classifications of mammary carcinoma based upon supposed histological or pathological features must necessarily prove bewildering to the student. I shall, therefore, follow the plan adopted in treating of carcinoma of the uterus, and classify carcinoma of the breast as (1) Scirrhus, or hard cancer; (2) medullary or encephaloid, or soft cancer; (3) epithelioma, or cancroïd, and (4) colloid cancer, the last named not having been considered in connection with carcinoma of the uterus. The chief histological features of these varieties do not vary essentially from those already described in Chapter XXXIII, and need not be repeated. I will only mention such features and sub-varieties as are characteristic of mammary carcinoma, and which have not already been mentioned in the chapter to which reference has been made.

(1) **SCIRRHOUS**, or hard cancer.—This variety corresponds to the fibrous or connective-tissue carcinoma of some authors, and the tubular form of Billroth. It includes not only the ordinary scirrhus, but also the simple carcinoma of Billroth, and the atrophying, retracting, withering, or cicatrizing carcinoma of Velpeau, Gross and others. Scirrhus is the most frequent form of mammary cancer.

Simple carcinoma, termed fibroso-medullary by Waldeyer, occupies a position between ordinary scirrhus and encephaloma. The cells and stroma exist in about equal proportions.

Atrophying scirrhus is peculiar to the mammary gland. In this form, according to Gross (1), “the epithelial elements undergo fatty degeneration, whereby they are partly converted into a granular emulsion, which is absorbed, while the contracting stroma renders the alveoli smaller and narrower, so that they are merely represented by a few elongated or fusiform clefts, between the thick tendinous or sclerosed bands of fibrous tissue, which contain fatty detritus, or one or more rows of unchanged cells.

“It creaks under the knife; and its cut surfaces are deeply concave, of a tendinous, glistening, bluish-gray lustre, and dotted here and there with pale yellow granular spots. The juice, if any at all can be expressed, is of a thin and citron-colored serous nature.”

1) Op. Cit., p. 131.

(2) **MEDULLARY, OR ENCEPHALOID.**—This variety is termed acinous carcinoma by Billroth, and multicellular carcinoma by Gross. It stands next in frequency to scirrhus in mammary carcinoma. The pathological features of medullary cancer are sufficiently given on page 281.

(3) **EPITHELIOMA.**—Epithelial cancer of the breast is of very rare occurrence, and is not mentioned by either Billroth or Gross. Prof. Hall, of Chicago, has seen three cases.

(4) **COLLOID CARCINOMA.**—This form is also known as gela-

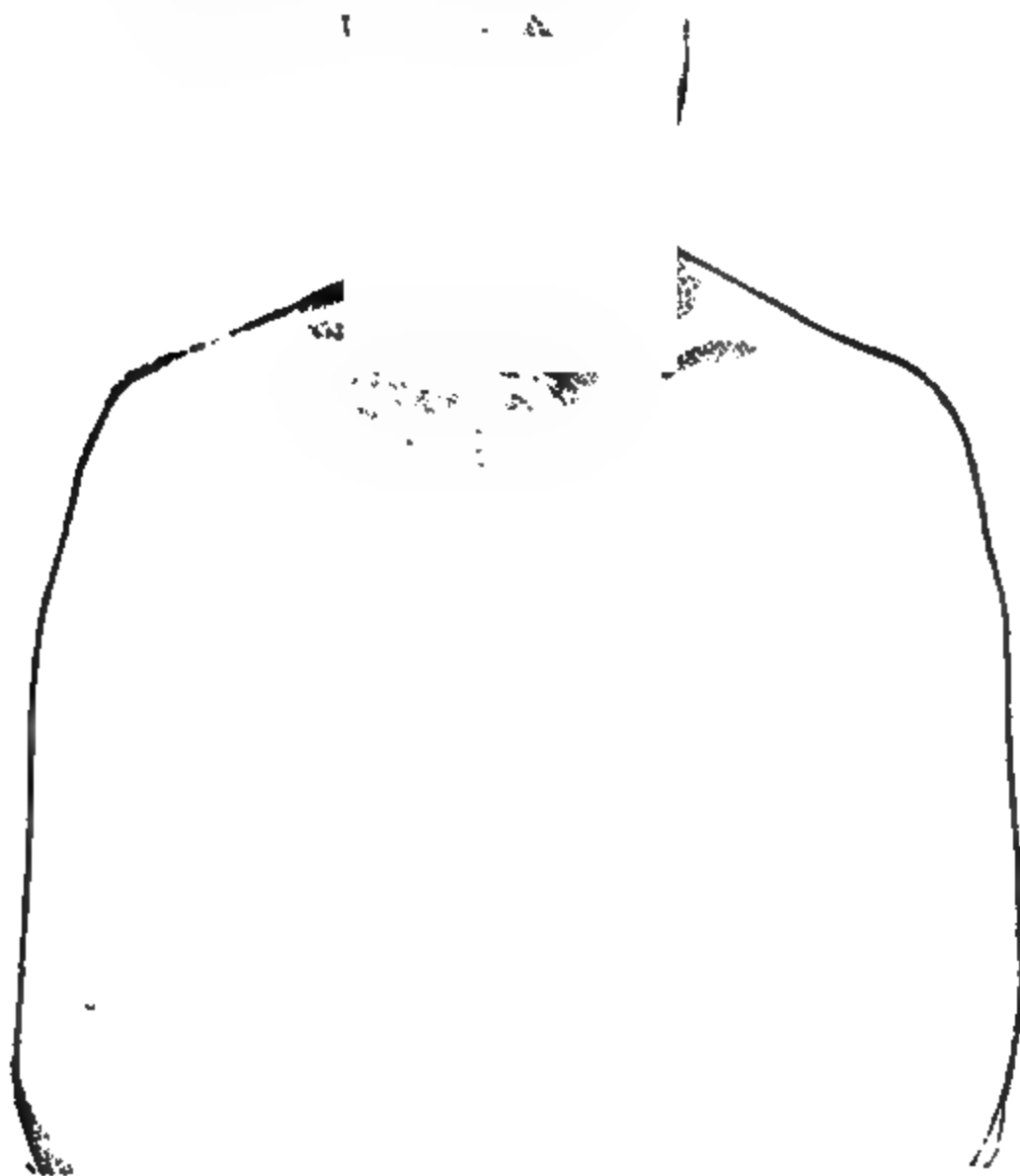


FIG. 209.—Atrophying scirrhus of the right mammary gland

tinous carcinoma, and is of rare occurrence. There exists a difference among pathologists as to the real nature of colloid carcinoma. Klebs and Billroth maintain that the colloid matter is derived from the epithelial cells. Doutrelepon claims that it is exuded from the vessels. Rindfleisch seems to hold the same idea. Gross and others hold that it results from a colloid degeneration of the protoplasm of the cells of ordinary cancer. Simmonds recognizes all

these views as possibly correct. Winckel (1) thus describes the anatomy of a colloid growth as taken from a record of twenty cases by Simmonds:—

“The nodule may be as large as a walnut, the fist, or even larger, have inequalities upon its surface, and present upon section a honeycomb appearance. The cavities contain epithelial cells, collected in round masses, and surrounded by a translucent homogeneous layer of colloid substance, which is separated from the connective-tissue stroma by a well-defined boundary line. The small-celled infiltration is very irregularly distributed, being uniform only at the borders; in some places the epithelium has undergone fatty degeneration; contraction apparently never occurs, probably because the colloid substance is absorbed with such difficulty.”

PATHOLOGY AND CLINICAL COURSE OF MAMMARY CARCINOMA.—Ordinary scirrhus of the breast presents a rounded, irregular, nodular outline, and is frequently depressed or cup-shaped on the surface. It is very hard and unyielding, and is, proportionately to its size—being usually no larger than a hen’s egg—heavier than any other mammary tumor.

Simple carcinoma presents a firm but not decidedly hard consistence, is bossed rather than nodulated, somewhat regular in outline, and grows considerably larger than true scirrhus. Not infrequently areas of caseation, softening and increased vascularity are present, and cancer juice may be expressed, though not to the same extent as in the medullary variety.

Atrophying scirrhus is the smallest of all varieties of carcinoma of the breast, and is also the most dense and inflexibly hard.

Medullary carcinoma is of a soft, elastic consistence, yielding almost a fluctuating feel. It attains greater dimensions than any variety of scirrhus. It presents many features in common with soft sarcoma, its contents often resembling brain tissue, and when this contains spaces filled with blood it is sometimes termed hematoid cancer, or fungous hematodes, from the sarcomatous variety of which it is impossible to distinguish it without the aid of the microscope.

Epithelioma is superficial, beginning on the cutaneous surface near the nipple, and may extend along the epithelial lining of the lactiferous ducts, or spread along the integument of the areola. In its progress it destroys the tissues from without inward, there being no distinct tumor. It may, however, give rise to small, nodular growths beneath its surface, and to diffuse thickening of the skin about the area of ulceration. Although epithelioma begins earlier, its progress is slower and less painful than in either of the

1) Op. Cit., p. 647.

forms of cancer just given, which attack the deeper structures of the gland. If not extirpated, the entire gland may be infiltrated, metastasis occur, and death follow from general exhaustion.

Colloid carcinoma is very nearly as hard as ordinary scirrhus and the growth is about the same size. All forms of carcinoma tend to involve only a single lobe of the breast, although, exceptionally, several lobes may be involved, and, very rarely, the whole gland. According to Billroth, it cannot be positively stated whether infiltration of the connective tissue, or epithelial proliferation, constitutes the initial process, but the skin is first involved, then the retro-mammary fascia, and, lastly, the pectoralis major muscle.

“This extension does not take place, by any means, to an equal degree in all directions, but frequently in the form of cords which radiate from the carcinomatous focus into the adjacent tissue, and, far more frequently, interruptedly, in the form of nodules, which appear around the carcinoma as a papular exanthem, constantly spreading in wider circles around the primary focus; between these parts the tissues may remain entirely healthy for a long time, until finally, if life lasts, the nodules grow into a large, confluent, nodular tumor. When we see this condition on the skin, we can, as a rule, conclude that a like condition exists in the deeper cellular tissue and in the muscle.”

After the pectoral muscles have become affected, the disease soon extends to the periosteum, the ribs, the costal pleura, and, finally, to the pleura covering the lungs.

The lymphatic glands of the axillæ become involved in about sixteen months from the first appearance of the disease. Billroth claims that the tissue in these glands is carcinomatous, but Gross maintains that it is not always carcinomatous, as several cases are on record in which it has been left behind during operations, and afterward subsided; the patients being alive years afterward. If, however, the same tissue-changes occur in the axillæ as in the primary cancer, it is probable that the cancer cells have been transmitted to various parts of the body by the veins and lymphatics. Billroth states that he has repeatedly seen the lymphatic systems of the pleura and diaphragm completely filled with carcinoma-cells, and he considers it, in the present state of our knowledge, highly probable that the continued, as well as the interrupted, extension of carcinoma is brought about by misplacement of corpuscular elements. It is now well established that when an operation is performed before the glands have become perceptibly involved, the patient will survive for a much longer period; even when recurrence takes place, the operation not only prolongs life by lengthening their intervals, but may even effect a permanent cure.

The large, soft nodules of medullary carcinoma run the most rapid course, this being from six months to one year, while the scirrhus variety is much slower, lasting from two to six years, and sometimes much longer.

In Dautrelepont's case of colloid cancer the disease lasted thirteen years. According to Simmonds, gelatinous cancer grows more slowly than any other form; the axillary glands are less frequently involved; metastases occur later; recurrences are more rare, and it is, therefore, of a more benign nature than any of the

FIG. 210.—Local dissemination and superficial ulceration of scirrhus.

other varieties. The atrophic, cicatrizing variety of cancer may continue more than twenty years.

Metastasis to parts where continuity of the disease would be impossible, occurs on an average in about two years. Metastatic deposits are found more frequently in the liver than in the lungs, and finally in the bones and brain. Billroth has not infrequently observed later invasion of the second mamma, as have several other authors. Superficial or deeply-seated ulceration may take place, involving only the integument, or the substance of the tumor

itself, from fatty and disintegrating changes. Superficial ulceration is represented in Fig. 210. In these cases, according to Gross, "the thin and discolored skin is at first cracked, fissured, excoriated, or eroded, and covered by thin crusts. Ere long a sore forms, which has a pale, granulating base, and discharges a thin, offensive fluid. Now and then it heals over, the cicatrix being thin, tense, red, and traversed by small vessels; or healing occurs in the first breach of continuity, while the ulceration continues to spread."

FIG. 211 —Local dissemination and deep ulceration of scirrhus carcinoma.

If the ulceration be deep-seated (Fig. 211), "a deep, excavated or crater-like cavity, with irregular, discolored, full, indurated and everted edges, and a base which is usually formed of hard granulations, and which discharges a puriform, bloody, foul, or ichorous fluid."

Billroth speaks of agaric-like (fungous) growths being characteristic of medullary carcinoma, yet Gross maintains that "although carcinoma is said to throw out fungous masses, I fancy that the statement is traditional, and I cannot find a single example confirmed by minute examination." Though the secretion of such

ulcers consists in part of true pus, yet there is seldom a formation of a really acute or chronic abscess in mammary carcinoma.

Ulceration may occur as early as the ninth month, but usually it is from the fifteenth to the thirtieth.

Adhesion to the skin usually takes place about six months prior to the ulcerative process, but adhesion to the chest does not occur until some two or three months after, generally about the twentieth month after the invasion of the disease. This process depends upon the extension of the disease to the retro-mammary fascia, and the pectoral muscles, and does not occur until that has taken place. At the same time it also usually marks the lymphatic involvement, the latter being understood to exist, even though it cannot be detected, whenever fixation of the tumor has occurred. Recurrences take place, according to Billroth, either by continuity at the site of the operation, due to portions of the tumor being left behind (either intentionally or otherwise); by regional disease; by new tumors springing up independently of the original tumor; by infection, neighboring glands having been involved before the operation; or by metastases, such as have already been mentioned.

According to Winiwarter's statistics, recurrence takes place within the first three months after operation in 82.4 per cent. of all cases. Billroth states that when an experienced surgeon is unable to detect recurrence one year after the wound made by the operation has healed, the patient may be considered as radically cured. He has fifteen cases in which patients were free from recurrence of the disease for thirteen months to twelve years after the operation.

I think the position of Valkmann is the safest. He says: "If a whole year passes after the operation, without a local recurrence, glandular swelling or symptom of internal affection being demonstrated on most careful examination, we may begin to hope that a permanent, good result has been obtained, of which we are usually certain after two years, and, almost without exception, positive of after three years."

Gross says "a radical cure may be assumed if the patient has survived the disease over three years without local or general recurrence after the last operation, or if she has died of some intercurrent malady under the same conditions."

According to Billroth we can set no limit to regional recurrences, which have taken place as long as twenty years after an operation.

From the statistics prepared by several eminent observers it is quite certain that a removal of the growth will retard the disease, adding an average of at least twelve months to the life of the patient. Not only is the life of the patient prolonged, but statis-

tics show that thorough operations result in permanent recovery in over nine per cent. of all cases. Atrophying scirrhus is the most pernicious of all the forms of carcinoma. Patients having it may live for a long time, even twenty or thirty years, but they always die sooner or later from its effects. After operation the disease invariably recurs, and metastatic deposits have been found in every case where a post-mortem examination has been made.

Carcinoma of the breast rarely occurs before the thirtieth year of age. After that age it gradually increases, reaching its maximum of frequency at forty-eight, and then decreasing, rarely occurs after the age of seventy.

ETIOLOGY.—Very little is really known as to the etiology of mammary carcinoma. That it may arise from either constitutional or local causes is quite probable. Heredity does not exert so important an influence as some have supposed, only about eight per cent. of the cases showing any hereditary predisposition.

A depreciated general health has little or no influence in the production of the disease, quite a large proportion of the women in whom carcinomata have developed having been in robust, or in fairly good health, and only a very small number showing any evidences of a dyscrasia or enfeebled constitution.

The puerperal process is considered to exert a prominent predisposing influence. I think, however, that the reason that a large proportion of cases occur in the married is more from the fact that, as has already been noted, the disease is most liable to occur at a period in life when most women either are or have been married, and that the relations of the married state have no direct influence in the production of the disease. A small percentage of cases have originated during pregnancy, but there is no evidence that these cases might not have occurred had the women not been pregnant. It is probable, however, that if a carcinoma of the breast has already started, it will be hastened in its growth by the irritation of the breasts which accompanies pregnancy. Sterility is considered a predisposing cause, notwithstanding the fact that carcinoma of the breast has occurred in a much larger number of multiparous than nulliparous women.

That former attacks of puerperal mastitis predispose to carcinoma there can be no doubt, more than eight per cent. of the cases being supposedly traceable to this cause. Winiwarter claims a proportion of twenty-one per cent., but, as Winckel says, "this relationship would be the more clearly marked if it could be shown that carcinoma appears in the portion of the gland which had been inflamed." Notwithstanding these opinions, I think it is safe to ascribe at least a small proportion of cases to lumps and

chronic indurations left by puerperal mastitis, which, after an indefinite period, become carcinomatous.

Mechanical injury, such as blows and contusions, are supposed to have been the cause in about eleven per cent. of the cases. Prof. Hall (1) suggests that "it is difficult to determine the exact influence which injury may hold in the production of those changes which result in cancer. In many cases the injury is so remote from the development that the patient forgets the occurrence. It is not infrequent, however, to have such a history related. A woman, forty-six years of age, previously healthy, struck her breast against the bedpost, causing severe pain. The indications of a tumor developed rapidly, but so acute were the symptoms that it was supposed to be merely an inflammatory condition. In six weeks it had involved the whole gland, and was removed. Six months later the patient died from recurrent growths. From one hundred cases coming under my own observation, twenty-three gave a history of previous injury."

My own experience has been limited, yet at least one-fourth of the cases coming under my observation have, presumably, resulted from trauma.

The prevalent idea that wearing tight corsets, or the pressure made by carrying school-books against the breast, may induce lumps and indurations which tend to eventual malignancy, has not been substantiated by any authentic observations.

In a small number of cases cancer of the breast has been preceded by eczema or psoriasis of the nipple and areola, and Winiwarter found two cases of fat women with intertrigo, in whom carcinoma appeared in the sulcus where the skin of the breast passes into that of the thorax.

Thus it is probable that a protracted irritation may give rise to carcinoma, the cause being rather in the continued irritation than in the characteristic form of skin disease. From these remarks the student may be convinced of the truthfulness of my first observation, namely, that but little is *really known* as to the etiology of mammary cancer, it being left for the surgeon and gynecologist of the future to answer the perplexing question as to the etiology of this disease by a careful and systematic analysis of the history and pathological anatomy of those cases which are yet to arise.

SYMPTOMS AND DIAGNOSIS.—Carcinoma of the mamma is most frequently first made known by the accidental discovery of a small nodule or induration, usually situated near the base of the nipple, or in the upper axillary border. Less often the patient's attention is first called to it by the occurrence of lancinating pains,

1) Arndt's System of Medicine, Vol. II, p. 528.

while in some cases she first experiences a sensation of tension, followed by the discharge of a serous, brownish, or bloody fluid from the nipple. Most often the nodule is first discovered, and continues to grow slowly for a year or more, before any pain or other symptoms are manifest. At this stage the diagnosis is of great importance, and is usually attended with considerable difficulty, often being impossible. It should be remembered that nodules or indurations found in the breast before puberty are almost invariably the result of inflammation; very rarely they are sarcomatous. If the patient is between twenty and thirty-five years of age, and the growth round, lobular and painless, growing slowly or not at all, it is probably a fibroma. If at the same age the growth is regular and uniform, either slow or rapid, it is probably an adenoma, sarcoma or cysto-sarcoma. If the growth is very rapid and the tumor of soft consistence and not very painful, it is a medullary sarcoma. If both breasts enlarge to any considerable degree at about the time of puberty the growth is benign, being usually a progressive hypertrophy (Fig. 202). When, however, the woman has passed the thirty-fifth year, when the induration or nodule makes its appearance, and the latter cannot be isolated from the adjacent tissues, and continues to grow, and becomes harder, giving rise to more or less pain, it is doubtless carcinoma.

The pain gradually becomes more constant and severe, and is described as burning or lancinating in its character, often causing the patient great and continual agony. In exceptional cases the pain is of a throbbing, gnawing or tingling character. If the axillary glands have become extensively involved, and adherent to the vessels and nerves, the patient will suffer intense neuralgic pains in the arm, which may become œdematous and, perhaps, finally end in enormous indurated elephantiasis of the entire member, as I have recently seen in a case of scirrhus of both breasts in a woman over sixty years of age.

According to Gross (1), "among the earliest of these phenomena, particularly when the tumor is superficial, is a dimpling or pitting of the skin. This pitting is entirely independent of carcinomatous adhesion between the skin and the growth, and arises from shortening of the fibrous bands or processes of the superficial mammary fascia which pass from the posterior surface of the skin into the interior of the breast, and which Sir Astley Cooper called the suspensory ligaments. This sign, together with the age of the patient and the consistence of the growth, enabled me to determine the true nature of a tumor of the size of a small filbert, and of five months' duration, situated at the clavicular border of the gland, before its removal."

1) Op. Cit., p. 146.

As the tumor continues to grow it produces an interstitial cicatrization which causes a great and permanent retraction of the nipple by shortening the milk-ducts, which terminate at its extremity. Gross says that "this process is the more apparent when the neoplasm develops in the immediate vicinity of the lacteal sinuses, or when the nipple itself is infiltrated and becomes the seat of cicatricial contraction." It may be possible, however, that this retraction is sometimes only apparent, as the disease may have caused a swelling of the areola, so that the nipple, instead of being retracted, is simply surrounded by an elevation made by the swollen tissues. Retraction of the nipple occurs in a majority of cases of carcinoma of the breast and is of great diagnostic importance.

Fixation of the tumor and axillary involvement occur at about the same time that retraction of the nipple takes place, as has been noted in a previous paragraph.

As the disease progresses from this point, signs of constitutional involvement gradually become manifest, and the patient begins to lose strength; the digestive functions become impaired, nutrition is interfered with, the eyes become dull, the skin assumes a peculiar yellowish or "cachectic" appearance, the features become shrunken and emaciated, and the patient is continually restless, sleeping neither day nor night, even when the pain lessens, which seldom occurs except when it is mitigated by opiates.

In the midst of these constitutional symptoms disintegration of the tumor sets in and follows a variable course, as has already been indicated in describing the clinical course of the disease.

PROGNOSIS.—The prognosis of carcinoma of the breast has been previously considered in connection with the clinical course of the disease. It might be added that the prognosis is more unfavorable when the axillary glands enlarge, or when the tumor softens rapidly, or when the adjacent cutis shows small, hard, reddish nodules, or, especially, if the disease extends rapidly from one breast to the other.

CHAPTER LXIV.

TREATMENT OF CARCINOMA OF THE MAMMARY GLAND.

THE treatment of mammary carcinoma, as of uterine carcinoma, may be either hygienic, constitutional, palliative or surgical. So far as the first three methods are concerned, the same remarks and rules apply as have already been given on page 289, and need not be repeated. I might say that in addition to the local applications there mentioned, a lotion of *Phytolacca*, or a poultice of the fresh root, may be used to advantage in many cases. I consider *Phytolacca* the most valuable local agent in the treatment of nearly all forms of mammary tumors, and, when indicated by the symptoms, its internal administration is not to be neglected. *Plantago* cerate is often useful, especially when a dry, eczematous condition exists about the nipple. Prof. Hall considers *Rhatany* cerate of most value in cases where "the areola and base of the nipple crack easily and are inclined to bleed readily." Phosphorated oil is recommended as a local application by both Hall and Ludlam. I have also used it with apparent benefit. In its use, Hall advises that great caution be exercised. He says (1) that "if the application produces a diffuse redness or miliary rash, if there is coincident disease of the os uteri, no application should be made to the breast that would have an effect to disperse the swelling there to the development of the uterine trouble, for the disease is better and more easily treated in the gland than in the uterus."

Prof. Hall also recommends the following treatment according to indications:—

"As the tumor gradually advances toward the stage of disintegration, and the parts take on a pinkish or purplish hue, a compress of calendula and cosmoline will retard the ulcerative process and relieve the pain.

"After the surface has become broken, there is an additional complication in the very offensive discharge of the hard cancer and in the hemorrhagic tendency of the soft cancer. In the former instances I have found great service from the following application:

Pure gypsum..... 1 lb.;
Oil of tar..... 1 oz.
Triturate well.

"To a small portion add sufficient olive oil, and mix until reduced to the consistency of cream. This may be spread upon a

1) Arndt, Op. Cit., p. 542.

piece of surgeon's-lint and applied to the ulcer. It absorbs and deodorizes the discharge, relieving the patient from the terrible stench.

“If the discharge is profuse, the application should be changed frequently, as the plaster becomes very hard after it is saturated with the discharge. Dilute Listerine, a 10 per cent. solution of Platt's chlorides, or a 10 per cent. solution of carbolic acid and glycerine may be used in the same manner.

“In soft cancer, when the hemorrhage is troublesome, styptic cotton, absorbent cotton saturated with a 10 per cent. solution of persulphate of iron, or cotton saturated with equal parts of Rhatany and Pond's extract, will control the hemorrhage and give relief to the patient.”

Should there be considerable hypertrophy of the breasts they should be properly supported by means of straps and bandages.

The breasts should be protected from cold and injury by being kept well covered with a layer of cotton wool, or some other protective, and corsets or any article of dress producing compression should be dispensed with. The diet should be nutritious, but light and easily digested, and all symptoms of functional derangement should be promptly combated with the indicated remedy.

The remedies mentioned on page 289 are equally useful in carcinoma of the mamma. I will give the chief indications for those only which are most often used.

ARSENICUM ALBUM.—This is our most useful remedy in the treatment of all forms of carcinoma. The chief indication for its use is a burning pain in the growth. After ulceration has taken place there are dark-colored, offensive, ichorous discharges, severe burning and lancinating pains, rapid destruction of tissue, great restlessness and prostration; cachexia.

ARSENICUM IODATUM.—This remedy is said to be especially useful in epithelioma, and in cases originating from eczema.

CARBO ANIMALIS.—Scirrhus; cachexia well marked; tumor uneven, nodulated; skin loose, dirty, bluish-red spots; burning pain; pain drawing toward axilla.

CONIUM.—The chief remedy in scirrhus; nodules and indurations in the gland, with burning or stitching pains; needle-like stitches; usually worse at night; breast abnormally tender.

CUNDURANGO.—According to Lilienthal (1) this remedy “is only efficacious in open cancer and cancerous ulcers, where it effectually moderates the severity of the pains. It does not act on scirrhus and indurated parts.”

GRAPHITES.—Carcinoma originating from eczema, or developing in nodules or cicatrices left after puerperal mastitis.

1) *Homeopathic Therapeutics*, p. 77.

HAMAMELIS.—According to Hall this remedy is useful “in soft cancer, with hemorrhagic tendency and ecchymosed spots in different portions of the breast.”

KREASOTUM.—Dwindling away of the *mammæ*, with small, hard, painful lumps in them; pungent, bloody, ichorous discharges; rapid emaciation, weakness and prostration.

PHOSPHORUS.—Hard nodules, bluish color; sharp, lancinating pains; ulceration deep with indurated margins; fistulous openings, with burning, stinging pains, and watery, offensive discharges; bleeds easily; fungus hematodes.

PHYTOLACCA.—Especially useful in first stages; gland full of hard, painful nodosities; much swelling and inflammation; especially during or soon after lactation.

REMOVAL BY CAUSTICS.—The method of removing carcinomatous growths from the mammary gland by means of caustics and escharotics, is, in the present advanced state of our knowledge, scarcely worthy of consideration. The time was when these agents were used extensively by the profession, but they are now, for the most part, relegated to the charlatan, who, taking advantage of the wide-spread prejudice existing against the use of the knife in cancerous affections, submits his patient to the protracted torture of this extremely painful, slow, and usually unsuccessful method of treatment. As Hall well says (1), “days, weeks and months are required to accomplish by caustics what, by the use of the knife, might be done in a few moments.”

Hall, in the same article, very aptly exposes one of the specious claims by which the so-called “cancer doctor” succeeds in imposing his method of “plaster” treatment upon the anxious but too credulous victim. He says:—“The assurance of the advocate of the plaster that the operation is a painless one, a safe one, and a radical one, the ‘roots’ of the cancer being removed, which it is impossible to do with the knife, is not entirely correct. The expression that the ‘roots’ are removed is, to say the least, unscientific. The small fibres which are attached to the growth when removed by the plaster, and called ‘roots,’ are nothing more than portions of fibrous tissue. When the plaster is applied, the adipose and soft tissue are first destroyed, the dense or fibrous tissue remaining. When the mass is removed, these fibrous threads come away in strings and are called ‘roots.’”

He farther adds, “There can be no doubt that the removal of the breast by the knife, under the influence of an anæsthetic, is the quickest, safest, least painful, most radical, and in all respects the better mode of procedure.”

1) Arndt, *Op. Clt.*, p. 545.

With this opinion, all honest and intelligent physicians fully agree.

SURGICAL TREATMENT.—At the present day there is very little question as to the advisability of an early removal of cancerous growths in the mammæ. While much benefit may be derived from constitutional treatment in retarding the progress of the disease, and in relieving suffering, nevertheless, as has been previously shown by statistics, life is materially prolonged by an operation, and in very many instances where the operation has been performed before the deeper structures have become invaded and the lymphatic glands involved, it has resulted in a radical cure.

Hall (1) advises operation:—

“First. Because it may cure, and because it does in the great majority of cases, according to the best collected statistics, prolong life from one to five years.

“Second. The removal of the diseased tissue, even when the cancerous cachexia is present, is a great relief to the suffering patient.

“The weight, the pressure, and the local pain are removed. The foul, offensive, unhealthy ulcer disappears, and an open, healthy granulating surface takes its place. The condition of the patient is changed to one of tolerance, and even if her days are not prolonged, life will cease to be a burden.”

The methods of surgical treatment consist in (1) enucleation of the tumor, and (2) amputation of the breast.

1. **ENUCLEATION.**—Benign tumors, and small, cancerous nodules may be removed by enucleation, provided the adjacent structures and the lymphatics are not involved, though many surgeons claim that even though the tumor be small, if we are certain of its cancerous nature the entire gland should be extirpated.

In making this operation the incision should usually be made along the crescentic fold at the lower border of the gland, as in this manner the scar is effectually concealed. The gland is then turned up and the tumor enucleated with the handle of the scalpel or with the index finger. The edges of the wound are then brought into apposition and secured by sutures, union usually taking place by first intention. According to Gross, if “the wound be a large one, a tent should be inserted into its most dependent portion, or at its lower angle, with the view to proper drainage, since, if primary union throughout be attempted, experience shows that erysipelas, septicæmia, and pyæmia, are of not infrequent occurrence.” If the skin is ulcerated it is safer to remove the entire breast, but if enucleation is attempted the ulcerated tissue should be included between two curvilinear incisions radiating from the nipple back-

1) Op. Cit., p. 544.

ward, the nipple being spared in every case in which it is possible to do so.

2. AMPUTATION OF THE BREAST.—This operation is performed as follows: The anæsthetized patient is placed upon the table with the chest slightly elevated, the breast of the affected side near the edge, and the arm held off at a right-angle from the body, the light being so arranged that it will fall directly upon the part to be removed. The lines of incision are first outlined, being careful that they be made from one to two inches outside of the limit of induration. A large, stout scalpel is then passed through the skin and fat, to the aponeurosis of the great pectoral muscle, and carried around the breast so as to encircle it. The fascial covering of the thoracic muscles should be dissected up with the gland. If the infiltration has involved the deeper portions of the organ, the pectoral muscles within the line of incision should be dissected out, leaving nothing but the ribs and intercostal muscles. All bleeding vessels should be secured with artery-forceps, and ligated with catgut after the amputation is completed.

The dissection should be made and the mass lifted from the sternum toward the axilla. In this way the larger vessels (the long thoracic artery and branches) are not divided until the incision, which completely severs the tumor, is being made.

The operator should now examine the wound and remove any suspicious tissue, or any outlying lobules of the gland, which are more often found in the axillary border of the incision. Gross then cauterizes the wound with Paquelin's cautery, but this is not the usual custom. Helmuth recommends thoroughly spraying the wound with a solution of carbolic acid.

If any enlargement or induration of the axillary glands exist, these must now be extirpated. For this purpose the incision is carried from the existing wound up to the axillary space, after which the diseased glands are removed with the fingers, aided, if necessary, by closed scissors curved on the flat. If any vessels are torn they must be ligated at the proximal end at once, and if the axillary vein is torn it must receive a double ligature in order to prevent the admission of air and consequent septicæmia. Most often the long thoracic artery has to be tied, but if great care is exercised the operation can frequently be performed without the necessity of using any ligatures whatever in the axillary space. The axillary wound having been thoroughly cleansed, the surfaces at the upper portion are brought together with interrupted sutures, and free drainage provided by introducing and securing an oiled tent in the lower angle of the wound. In order to diminish the size of the large wound, resulting from the removal of the breast, the skin may be dissected for several inches from its deep connec-

tions and several sutures inserted at a considerable distance from the edges, and then drawn nearer together. Gross recommends protecting the entire surface "by an oiled compress confined by adhesive strips and a broad roller, through the latter of which the arm is also fixed to the chest."

Billroth thinks that "the danger of the operation is extraordinarily diminished by the antiseptic method," and recommends strongly that it should always be performed with strict antiseptic precautions. On the other hand, Gross never resorts to these precautions. He says "the wound being an open one, there are no dangers to be feared from decomposing retained secretions or clots of blood, and the five patients that I subjected to the procedure all recovered under simple dressings. In the partial extirpations of the breast that I have practiced, I have also restricted myself to the compress of oiled lint, and I have never had reason to regret the practice. Whether the antiseptic treatment has diminished the mortality of the operations upon the mammary gland, it is impossible to say from any very extended experience, although the observations of Oldekop on this point are not in its favor."

According to Gross the dressings should not be removed, except the weather be very warm, under three days, when a slippery-elm poultice may be "substituted for the oiled lint, and the tent be removed from the axilla, the wound being kept open subsequently by the daily insertion and expansion of the blades of the dressing-forceps. The sutures should be permitted to remain as long as they are doing good. With the view of promoting the granulating process, when cicatrization is well established, the surface may be touched daily with a weak solution of nitrate-of-silver; or healing may be expedited, when the wound is very large, by epidermic grafting."

Amputation of the breast, especially if the axillary glands are also to be removed, is a more formidable operation than the neophyte might suppose, and, on account of the great danger of wounding important vessels and bringing about fatal hemorrhage, it should not be attempted by one who has had no experience, or, at least, who has never witnessed the operation.

A P P E N D I X.

DRY HEAT IN THE TREATMENT OF UTERINE DISEASES.

I have received from Prof. Phil. Porter, M.D., just in time for its insertion in the Appendix, a description of the instrument which he has devised for the treatment of diseases of the uterus by the application of dry heat to the endometrium.

Prof. Porter says:

“The benefit to be derived from the use of heat, either dry



FIG. 212.—Porter's dry heater for uterus and bladder.

or moist, in the treatment of diseases of the uterus, has long been known. Owing to the great sensitiveness of the uterus, and its peculiar formation, the practice of injecting hot water into its cavity has been almost entirely abandoned. In order to obtain the advantages of the use of heat, and yet avoid the deleterious

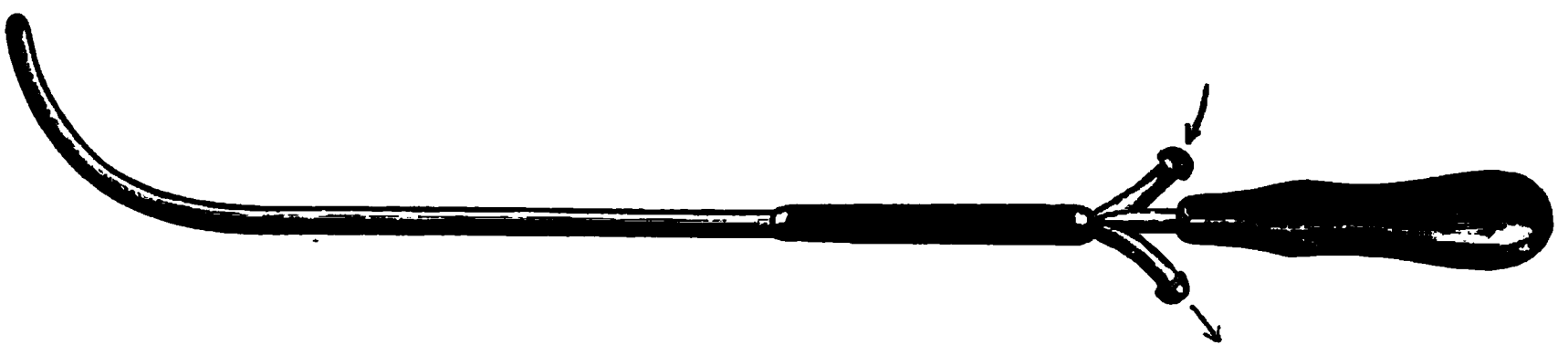


FIG. 213.—Porter's dry heater for vagina and rectum.

effects of former methods of treatment in which this agent was employed, it occurred to me that the object might be best attained by means of dry heat. Accordingly, I devised the instrument which is illustrated in Fig. 212. In my hands it has proved to be perfectly adapted to the purpose desired. It was suggested to my mind by having seen an instrument which was used by Drs. Hamilton and Palmer, of Minneapolis, for the treatment of rectal

ulcers in phthisical subjects. I recalled, also, some remarks on the subject of the treatment of disease by dry heat, made by Dr. Albert Claypool, of Toledo, at the meeting of the American Institute of Homeopathy, in 1887. Acting upon the suggestions thus received, I had this instrument made. It is so constructed as to be used either for the uterus or for the female bladder. It consists of a metal tube nine inches long, insulated throughout its entire length, except about three inches from the tip. This insulation renders it possible to use the instrument without passing it through a speculum, and, while the degree of heat attained within the uterus may be from 125° to 145° F., the vagina is exposed to no corresponding rise of temperature. A similar protection is afforded the urethra when the instrument is introduced into the female bladder. Two sizes of these instruments are made, the smaller to be used in a uterus in which dilatation is impracticable, but for ordinary purposes the larger one is to be preferred.

“ This instrument I can confidently recommend in the treatment of that class of uterine and vesical disorders in which the pathological changes are dependent upon some nutritive disturbance. Subinvolution, areolar hyperplasia, chronic metritis, endometritis, cervicitis, are all quickly relieved, by having the vascular supply to the organ much improved.

“ The method of applying the dry heat treatment to the uterine cavity is as follows: The patient is placed in the latero-abdominal position, with the hips brought well down to the edge of the chair or table. Until somewhat familiar with the use of the instrument, the retractor should be employed to expose the cervix. It is assumed that the patient has previously been examined, and the size of the tube to be selected for use has been determined by the introduction of a whale-bone or silver-wire probe. The point of the heater should then be passed to the fundus uteri. If there is no obstruction at the internal os, a steady pressure upon the instrument will usually be sufficient, but if it produces pain, the tip of the heater should be allowed to remain, and the hot water turned on; this will in a short time cause sufficient relaxation to permit the tube to pass into the cavity of the uterus. If the speculum has been employed, it may now be withdrawn, for the sake of the patient's comfort. The heater once in place, it is retained there, and the temperature is gradually raised to about 145° F. The uterus is not so richly supplied with nerves of sensation as are the bladder, vagina and rectum, so that the endometrium may be burnt without eliciting any cry of pain from the patient. However, it is well to have a thermometer attached to the tank containing the hot water, so that the degree of heat may be intelligently regulated.

“ At first, especially in cases of metritis, the patient will complain of a bearing-down sensation, but this soon passes off, and nothing but a warm, comfortable feeling is experienced. The treatment should be continued from twenty minutes to half-an-hour, according to the endurance and comfort of the patient. In cases marked by hemorrhage, it is well to prolong the application as long as an hour. The larger sized tube should be selected whenever it is practicable.

“ When employing the heater for the urethra or bladder, the greatest care should be exercised at first, the parts being particularly sensitive. It is my plan to deposit a few drops of a 10 per cent. solution of cocaine with an ordinary glass dropping-tube, made by heating and slightly curving a piece of glass tubing, about six inches long, and having a rubber nipple at the end. This glass tube is an excellent instrument for the purpose of depositing a few drops of any desired liquid within the uterus.

“ A few minutes after the cocaine has been deposited within the urethra or bladder, the heater can be introduced without discomfort. A few treatments will usually relieve the bladder of the tenesmus, and the tube can be placed in position without the use of cocaine. The bladder should be first emptied with a soft-rubber catheter having as small eyelet holes or apertures as can be obtained.*

“ Applications to the urethra will vary with the nature and locality of the disease, the metal portion of the tube being placed directly against the affected part. The vagino-rectal tube is, as its name implies, employed both for the vagina and the rectum. For ordinary vaginal irritations, like vaginitis, the tube is to be introduced, brought to the desired temperature, and allowed to remain in position for the usual length of time. It will be found, with but few exceptions, that in vaginal troubles there will also be rectal complications, the vaginitis being of a secondary nature. The only instructions to be given relative to the introduction of the vaginal tube is that the end of the tube should be passed well up to, and under, or behind, the cervix uteri. If the patient be placed in the latero-abdominal position, there will be but little trouble in introducing the tube, especially if the fore-finger is introduced within the vagina, and the latter retracted so as to admit air.

“ The rectal heater, as an adjunct to the treatment of the pelvic disorders of women will prove to be of great value. I am satisfied of the great relative frequency of this class of complaints

* The presence of a large eyelet hole in a female catheter is often the cause of much injury to the interior of the bladder. The ordinary sized eyelet in a catheter causes the instrument to yield at this point, and when grasped by the bladder or urethra the mucous membrane becomes engaged, by being forced down into the sulcus thus formed, and when the instrument is withdrawn the delicate tissue may be abraded or lacerated.

in connection with uterine disorders, and the successful practitioner will prove to be the one who studies the pathology and condition of rectal maladies in their relation to that of uterine disease. The recto-vaginal tube is six inches long by one inch in diameter, insulated by one and one-half inches at the base, so as to protect the tissue at the junction of the skin and mucous membrane, which is a very sensitive point. In conjunction with local applications, it can be utilized for the treatment of any rectal disorder, but I employ it only for its effect upon the vascular supply to the part, to correct the nutrition of the rectum and the adjacent connective tissue. The continued action of the heat soon creates a change in the state of the tissues, and relieves the over-distended vessels."

SERRATED SCISSORS AND COMPOUND TENACULUM FOR AMPUTATION OF THE
CERVIX UTERI, AND FOR THE REMOVAL OF PEDUNCULATED
AND SESSILE TUMORS FROM THE CERVIX.

MY attention has but recently been called to the above-named instruments (Figs. 214, 215), devised by Dr. W. H. Wathen, of Louisville, Ky., through an article appearing in the *New York Medical Journal*, September 1, 1888. I am so favorably impressed with their probable utility in the operations named, that I have concluded to quote Dr. Wathen's remarks concerning their use. He says that he devised the instruments in 1877, and has "used them since in amputations of the cervix uteri and for the removal of tumors from the cervix. It will be observed that the scissors is made after the fashion of an ordinary scissors, bent at right-angles on the flat, with the blades slightly curved on the edge and finely and sharply serrated. It cuts by a rotary motion; and an indurated cervix, or a hard fibroid tumor with a base two inches in diameter, may be removed by it in a few minutes, with no more hemorrhage than usually follows the use of the *écraseur*. It affords the best and the safest means to perform these operations, and in amputations of the cervix, the mucous membrane of the intra-cervical and the extra-cervical tissues may be brought together and will leave no open wound to absorb septic matter, or to heal by granulations, and probably cause cicatricial contraction of the canal, such as often follows amputations by the *écraseur* or the galvano-cautery. This scissors has recently been much improved, and has been made more powerful and more aseptic. But it is necessary to have a strong double tenaculum forceps, so that the

cervix or tumor may be held steady while being removed by the rotary or sawing motion of the scissors. I have improved the ordinary tenaculum by combining it with another, to be introduced into the os in amputations of the cervix and fastened into the tissue of the cervical canal. By this means we may remove a cone-shaped piece by pulling down the intra-cervical tissue before introducing the outer teeth of the tenaculum into the vaginal mucous membrane of the cervix; and by pulling gently on the tenaculum

FIG. 214.—Wathen's serrated scissors.

FIG. 215.—Wathen's compound tenaculum.

during the process of amputation, the excavation into the uterus will thereby be increased. There is no necessity of dividing the mucous membrane high up, and therefore the danger of cutting into the peritoneum is relatively less. With this scissors and tenaculum the excision may be performed without risk of wounding any part of the vagina. The tenaculum can be immediately separated into its four parts, so as to be perfectly cleansed and made aseptic."

A NEW ABDOMINAL ELECTRODE.

Dr. Ely Van de Warker has devised a new abdominal electrode, which he considers superior to the clay electrode of Apostoli, described in Chapter XXI, and which is certainly preferable from the standpoint of neatness and convenience. Dr. Van de Warker describes his electrode as follows:—"A circular disk of zinc, to which is connected the binding-post, has attached to its periphery, by solder, half a dozen fine copper wires eight inches long, or of sufficient length to reach across the electrode, which are loosely tucked, as the needlewomen call it, to a piece of thick, firm chamois-skin, cut the shape and size of the intended electrode. Upon this is laid another piece of chamois-skin of the same size, and the two are quilted together in rows parallel to each other, and about two-thirds of an inch apart. The spaces thus made are filled with fine shot. A thin vulcanized plate, the same size as the zinc disk, is interposed between the chamois-skin and the zinc, on the contact side of the electrode, so that the current will be diffused through the latter, and not directly from the zinc. The copper wires should be tacked to the upper and not the contact side of the electrode. The electrode is prepared by being dipped in water until it is saturated, and thus the chamois-skin becomes as perfect a conductor as water can make it."

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